CALL NO. 120

CONTRACT ID. 141050

BUTLER COUNTY

FED/STATE PROJECT NUMBER STPS 5075(057)

DESCRIPTION G.L. SMITH STREET(US-231)

WORK TYPE GRADE & DRAIN WITH ASPHALT SURFACE

PRIMARY COMPLETION DATE 130 CALENDAR DAYS

LETTING DATE: September 26,2014

Sealed Bids will be received electronically through the Bid Express bidding service until 10:00 AM EASTERN DAYLIGHT TIME September 26,2014. Bids will be publicly announced at 10:00 AM EASTERN DAYLIGHT TIME.

PLANS AVAILABLE FOR THIS PROJECT.

DBE CERTIFICATION REQUIRED - 2%

REQUIRED BID PROPOSAL GUARANTY: Not less than 5% of the total bid.

TABLE OF CONTENTS

PART I

SCOPE OF WORK

ADMINISTRATIVE DISTRICT - 03

CONTRACT ID - 141050

STPS 5075(057)

COUNTY - BUTLER

PCN - DE01602311450
STPS 5075(057)

G.L. SMITH STREET(US-231) CONSTRUCT TURN LANES IN BOTH DIRECTIONS AT THE INTERSECTION OF US-231/KY-70 ON TO BOAT FACTORY ROAD.GRADE & DRAIN WITH ASPHALT SURFACE SYP NO. 03-08503.00.

GEOGRAPHIC COORDINATES LATITUDE 37:13:46.00 LONGITUDE 86:41:23.00

COMPLETION DATE(S):

130 CALENDAR DAYS	APPLIES TO ENTIRE CONTRACT

CONTRACT NOTES

PROPOSAL ADDENDA

All addenda to this proposal must be applied when calculating bid and certified in the bid packet submitted to the Kentucky Department of Highways. Failure to use the correct and most recent addenda may result in the bid being rejected.

BID SUBMITTAL

Bidder must use the Department's Expedite Bidding Program available on the Internet web site of the Department of Highways, Division of Construction Procurement. (www.transportation.ky.gov/construction-procurement)

The Bidder must download the bid file located on the Bid Express website (www.bidx.com) to prepare a bid packet for submission to the Department. The bidder must submit electronically using Bid Express.

JOINT VENTURE BIDDING

Joint venture bidding is permissible. All companies in the joint venture must be prequalified in one of the work types in the Qualifications for Bidders for the project. The bidders must get a vendor ID for the joint venture from the Division of Construction Procurement and register the joint venture as a bidder on the project. Also, the joint venture must obtain a digital ID from Bid Express to submit a bid. A joint bid bond of 5% may be submitted for both companies or each company may submit a separate bond of 5%.

UNDERGROUND FACILITY DAMAGE PROTECTION

The contractor is advised that the Underground Facility Damage Protection Act of 1994, became law January 1, 1995. It is the contractor's responsibility to determine the impact of the act regarding this project, and take all steps necessary to be in compliance with the provision of the act.

SPECIAL NOTE FOR PIPE INSPECTION

Contrary to Section 701.03.08 of the 2012 Standard Specifications for Road and Bridge Construction and Kentucky Method 64-114, certification by the Kentucky Transportation Center for prequalified Contractors to perform laser/video inspection is not required on this contract. It will continue to be a requirement for the Contractor performing any laser/video pipe inspection to be prequalified for this specialized item with the Kentucky Transportation Cabinet-Division of Construction Procurement.

SPECIAL NOTE FOR COMPOSITE OFFSET BLOCKS

Contrary to the Standard Drawings (2012 edition) the Cabinet will allow 6" composite offset blocks in lieu of wooden offset blocks, except as specified on proprietary end treatments and crash cushions. The composite blocks shall be selected from the Cabinet's List of Approved Materials.

REGISTRATION WITH THE SECRETARY OF STATE BY A FOREIGN ENTITY

Pursuant to KRS 176.085(1)(b), an agency, department, office, or political subdivision of the Commonwealth of Kentucky shall not award a state contract to a person that is a foreign entity required by KRS 14A.9-010 to obtain a certificate of authority to transact business in the Commonwealth ("certificate") from the Secretary of State under KRS 14A.9-030 unless the person produces the certificate within fourteen (14) days of the bid or proposal opening. If the foreign entity is not required to obtain a certificate as provided in KRS 14A.9-010, the foreign entity should identify the applicable exception. Foreign entity is defined within KRS 14A.1-070.

For all foreign entities required to obtain a certificate of authority to transact business in the Commonwealth, if a copy of the certificate is not received by the contracting agency within the time frame identified above, the foreign entity's solicitation response shall be deemed non-responsive or the awarded contract shall be cancelled.

Businesses can register with the Secretary of State at https://secure.kentucky.gov/sos/ftbr/welcome.aspx .

SPECIAL NOTE FOR PROJECT QUESTIONS DURING ADVERTISEMENT

Questions about projects during the advertisement should be submitted in writing to the Division of Construction Procurement. This may be done by fax (502) 564-7299 or email to kytc.projectquestions@ky.gov. The Department will attempt to answer all submitted questions. The Department reserves the right not to answer if the question is not pertinent or does not aid in clarifying the project intent.

The deadline for posting answers will be 3:00 pm Eastern Daylight Time, the day preceding the Letting. Questions may be submitted until this deadline with the understanding that the later a question is submitted, the less likely an answer will be able to be provided.

The questions and answers will be posted for each Letting under the heading "Questions & Answers" on the Construction Procurement website (www.transportation.ky.gov/contract). The answers provided shall be considered part of

this Special Note and, in case of a discrepancy, will govern over all other bidding documents.

HARDWOOD REMOVAL RESTRICTIONS

The US Department of Agriculture has imposed a quarantine in Kentucky and several surrounding states, to prevent the spread of an invasive insect, the emerald ash borer. Hardwood cut in conjunction with the project may not be removed from the state. Chipping or burning on site is the preferred method of disposal.

INSTRUCTIONS FOR EXCESS MATERIAL SITES AND BORROW SITES

Identification of excess material sites and borrow sites shall be the responsibility of the Contractor. The Contractor shall be responsible for compliance with all applicable state and federal laws and may wish to consult with the US Fish and Wildlife Service to seek protection under Section 10 of the Endangered Species Act for these activities.

ACCESS TO RECORDS

The contractor, as defined in KRS 45A.030 (9) agrees that the contracting agency, the Finance and Administration Cabinet, the Auditor of Public Accounts, and the Legislative Research Commission, or their duly authorized representatives, shall have access to any books, documents, papers, records, or other evidence, which are directly pertinent to this contract for the purpose of financial audit or program review. Records and other prequalification information confidentially disclosed as part of the bid process shall not be deemed as directly pertinent to the contract and shall be exempt from disclosure as provided in KRS 61.878(1)(c). The contractor also recognizes that any books, documents, papers, records, or other evidence, received during a financial audit or program review shall be subject to the Kentucky Open Records Act, KRS 61.870 to 61.884.

In the event of a dispute between the contractor and the contracting agency, Attorney General, or the Auditor of Public Accounts over documents that are eligible for production and review, the Finance and Administration Cabinet shall review the dispute and issue a determination, in accordance with Secretary's Order 11-004. (See attachment)

10/29/12

Commonwealth of Kentucky
Finance and Administration Cabinet
OFFICE OF THE SECRETARY
Room 383, Capitol Annex
702 Capital Avenue
Frankfort, KY 40601-3462
(502) 564-4240
Fax (502) 564-6785

Steven L. Beshear
Governor

Lori H. Flanery
Secretary

SECRETARY'S ORDER 11-004

FINANCE AND ADMINISTRATION CABINET

Vendor Document Disclosure

WHEREAS, in order to promote accountability and transparency in governmental operations, the Finance and Administration Cabinet believes that a mechanism should be created which would provide for review and assistance to an Executive Branch agency if said agency cannot obtain access to documents that it deems necessary to conduct a review of the records of a private vendor that holds a contract to provide goods and/or services to the Commonwealth; and

WHEREAS, in order to promote accountability and transparency in governmental operations, the Finance and Administration Cabinet believes that a mechanism should be created which would provide for review and assistance to an Executive Branch agency if said agency cannot obtain access to documents that it deems necessary during the course of an audit, investigation or any other inquiry by an Executive Branch agency that involves the review of documents; and

WHEREAS, KRS 42.014 and KRS 12.270 authorizes the Secretary of the Finance and Administration Cabinet to establish the internal organization and assignment of functions which are not established by statute relating to the Finance and Administration Cabinet; further, KRS Chapter 45A.050 and 45A.230 authorizes the Secretary of the Finance and Administration Cabinet to procure, manage and control all supplies and services that are procured by the Commonwealth and to intervene in controversies among vendors and state agencies; and

NOW, THEREFORE, pursuant to the authority vested in me by KRS 42.014, KRS 12.270, KRS 45A.050, and 45A.230, I, Lori H. Flanery, Secretary of the Finance and Administration Cabinet, do hereby order and direct the following:

I. Upon the request of an Executive Branch agency, the Finance and Administration Cabinet ("FAC") shall formally review any dispute arising where the agency has requested documents from a private vendor that holds a state contract and the vendor has refused access to said documents under a claim that said documents are not directly pertinent or relevant to the agency's inquiry upon which the document request was predicated.

II. Upon the request of an Executive Branch agency, the FAC shall formally review any situation where the agency has requested documents that the agency deems necessary to

conduct audits, investigations or any other formal inquiry where a dispute has arisen as to what documents are necessary to conclude the inquiry.

III. Upon receipt of a request by a state agency pursuant to Sections I & II, the FAC shall consider the request from the Executive Branch agency and the position of the vendor or party opposing the disclosure of the documents, applying any and all relevant law to the facts and circumstances of the matter in controversy. After FAC's review is complete, FAC shall issue a Determination which sets out FAC's position as to what documents and/or records, if any, should be disclosed to the requesting agency. The Determination shall be issued within 30 days of receipt of the request from the agency. This time period may be extended for good cause.

IV. If the Determination concludes that documents are being wrongfully withheld by the private vendor or other party opposing the disclosure from the state agency, the private vendor shall immediately comply with the FAC's Determination. Should the private vendor or other party refuse to comply with FAC's Determination, then the FAC, in concert with the requesting agency, shall effectuate any and all options that it possesses to obtain the documents in question, including, but not limited to, jointly initiating an action in the appropriate court for relief.

V. Any provisions of any prior Order that conflicts with the provisions of this Order shall be deemed null and void.

FEDERAL CONTRACT NOTES

The Kentucky Department of Highways, in accordance with the Regulations of the United States Department of Transportation 23 CFR 635.112 (h), hereby notifies all bidders that failure by a bidder to comply with all applicable sections of the current Kentucky Standard Specifications, including, but not limited to the following, may result in a bid not being considered responsive and thus not eligible to be considered for award:

102.02 Current Capacity Rating 102.10 Delivery of Proposals
102.08 Irregular Proposals 102.14 Disqualification of Bidders
102.09 Proposal Guaranty

CIVIL RIGHTS ACT OF 1964

The Kentucky Department of Highways, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252) and the Regulations of the Federal Department of Transportation (49 C.F.R., Part 21), issued pursuant to such Act, hereby notifies all bidders that it will affirmatively insure that the contract entered into pursuant to this advertisement will be awarded to the lowest responsible bidder without discrimination on the ground of race, color, or national origin.

NOTICE TO ALL BIDDERS

To report bid rigging activities call: 1-800-424-9071.

The U.S. Department of Transportation (DOT) operates the above toll-free "hotline" Monday through Friday, 8:00 a.m. to 5:00 p.m. eastern time. Anyone with knowledge of possible bid rigging, bidder collusion, or other fraudulent activities should use the "hotline" to report such activities.

The "hotline" is part of the DOT's continuing effort to identify and investigate highway construction contract fraud and abuse and is operated under the direction of the DOT Inspector General. All information will be treated confidentially and caller anonymity will be respected.

SECOND TIER SUBCONTRACTS

Second Tier subcontracts on federally assisted projects shall be permitted. However, in the case of DBE's, second tier subcontracts will only be permitted where the other subcontractor is also a DBE. All second tier subcontracts shall have the consent of both the Contractor and the Engineer.

DISADVANTAGED BUSINESS ENTERPRISE PROGRAM

It is the policy of the Kentucky Transportation Cabinet ("the Cabinet") that Disadvantaged Business Enterprises ("DBE") shall have the opportunity to participate in the performance of highway construction projects financed in whole or in part by Federal Funds in order to create a level playing field for all businesses who wish to contract with the Cabinet. To that end, the Cabinet will comply with the regulations found in 49 CFR Part 26, and the definitions and requirements contained therein shall be adopted as if set out verbatim herein.

The Cabinet, contractors, subcontractors, and sub-recipients shall not discriminate on the basis of race, color, national origin, or sex in the performance of work performed pursuant to Cabinet contracts. The contractor shall carry out applicable requirements of 49 CFR 26 in the award and administration of federally assisted highway construction projects. The contractor will include this provision in all its subcontracts and supply agreements pertaining to contracts with the Cabinet.

Failure by the contractor to carry out these requirements is a material breach of its contract with the Cabinet, which may result in the termination of the contract or such other remedy as the Cabinet deems necessary.

DBE GOAL

The Disadvantaged Business Enterprise (DBE) goal established for this contract, as listed on the front page of the proposal, is the percentage of the total value of the contract.

The contractor shall exercise all necessary and reasonable steps to ensure that Disadvantaged Business Enterprises participate in a least the percent of the contract as set forth above as goals for this contract.

OBLIGATION OF CONTRACTORS

Each contractor prequalified to perform work on Cabinet projects shall designate and make known to the Cabinet a liaison officer who is assigned the responsibility of effectively administering and promoting an active program for utilization of DBEs.

If a formal goal has not been designated for the contract, all contractors are encouraged to consider DBEs for subcontract work as well as for the supply of material and services needed to perform this work.

Contractors are encouraged to use the services of banks owned and controlled by minorities and women.

CERTIFICATION OF CONTRACT GOAL

Contractors shall include the following certification in bids for projects for which a DBE goal has been established. BIDS SUBMITTED WHICH DO NOT INCLUDE CERTIFICATION OF DBE PARTICIPATION WILL NOT BE ACCEPTED. These bids will not be considered for award by the Cabinet and they will be returned to the bidder.

"The bidder certifies that it has secured participation by Disadvantaged Business Enterprises ("DBE") in the amount of ____ percent of the total value of this contract and that the DBE participation is in compliance with the requirements of 49 CFR 26 and the policies of the Kentucky Transportation Cabinet pertaining to the DBE Program."

The certification statement is located in the electronic bid file. All contractors must certify their DBE participation on that page. DBEs utilized in achieving the DBE goal must be certified and prequalified for the work items at the time the bid is submitted.

DBE PARTICIPATION PLAN

Lowest responsive bidders must submit the *DBE Plan/ Subcontractor Request*, form TC 63-35 DBE, within 10 days of the letting. This is necessary before the Awards Committee will review and make a recommendation. **The project will not be considered for award prior to submission and approval of the apparent low bidder's DBE Plan/Subcontractor Request.**

The DBE Participation Plan shall include the following:

1 Name and address of DBE Subcontractor(s) and/or supplier(s) intended to be used in the proposed project;
2 Description of the work each is to perform including the work item , unit, quantity, unit price and total amount of the work to be performed by the individual DBE. The Project Code Number (PCN), Category Number, and the Project Line Number can be found in the "material listing" on the Construction Procurement website under the specific letting;
3 The dollar value of each proposed DBE subcontract and the percentage of total project contract value this represents. DBE participation may be counted as follows; a) If DBE suppliers and manufactures assume actual and contractual responsibility, the dollar value of materials to be furnished will be counted toward the goal as follows:

- The entire expenditure paid to a DBE manufacturer;
- 60 percent of expenditures to DBE suppliers that are not manufacturers provided the supplier is a regular dealer in the product involved. A regular dealer must be engaged in, as its principal business and in its own name, the sale of products to

the public, maintain an inventory and own and operate distribution equipment; and

- The amount of fees or commissions charged by the DBE firms for a bona fide service, such as professional, technical, consultant, or managerial services and assistance in the procurement of essential personnel, facilities, equipment, materials, supplies, delivery of materials and supplies or for furnishing bonds, or insurance, providing such fees or commissions are determined to be reasonable and customary.

b) The dollar value of services provided by DBEs such as quality control testing, equipment repair and maintenance, engineering, staking, etc.;

c) The dollar value of joint ventures. DBE credit for joint ventures will be limited to the dollar amount of the work actually performed by the DBE in the joint venture;

4 Written and signed documentation of the bidder's commitment to use a DBE contractor whose participation is being utilized to meet the DBE goal; and

5 Written and signed confirmation from the DBE that it is participating in the contract as provided in the prime contractor's commitment.

UPON AWARD AND BEFORE A WORK ORDER WILL BE ISSUED

Contractors must submit the signed subcontract between the contractor and the DBE contractor, the DBE's certificate of insurance, and an affidavit for bidders, offerors, and contractors from the DBE to the Division of Construction Procurement. The affidavit can be found on the Construction Procurement website. If the DBE is a supplier of materials for the project, a signed purchase order and an affidavit for bidders, offerors, and contractors must be submitted to the Division of Construction Procurement.

Changes to DBE Participation Plans must be approved by the Cabinet. The Cabinet may consider extenuating circumstances including, but not limited to, changes in the nature or scope of the project, the inability or unwillingness of a DBE to perform the work in accordance with the bid, and/or other circumstances beyond the control of the prime contractor.

CONSIDERATION OF GOOD FAITH EFFORTS REQUESTS

If the DBE participation submitted in the bid by the apparent lowest responsive bidder does not meet or exceed the DBE contract goal, the apparent lowest responsive bidder must submit a Good Faith Effort Package to satisfy the Cabinet that sufficient good faith efforts were made to meet the contract goals prior to submission of the bid. Efforts to increase the goal after bid submission will not be considered in justifying the good faith effort, unless the contractor can show that the proposed DBE was solicited prior to the letting date. DBEs utilized in achieving the DBE goal must be certified and prequalified for the work items at the time the bid is submitted. One complete set and nine (9) copies of this information must be received in the

office of the Division of Contract Procurement no later than 12:00 noon of the tenth calendar day after receipt of notification that they are the apparent low bidder.

Where the information submitted includes repetitious solicitation letters it will be acceptable to submit a sample representative letter along with a distribution list of the firms solicited. Documentation of DBE quotations shall be a part of the good faith effort submittal as necessary to demonstrate compliance with the factors listed below which the Cabinet considers in judging good faith efforts. This documentation may include written subcontractors' quotations, telephone log notations of verbal quotations, or other types of quotation documentation.

The Good Faith Effort Package shall include, but may not be limited to information showing evidence of the following:

1 Whether the bidder attended any pre-bid meetings that were scheduled by the Cabinet to inform DBEs of subcontracting opportunities;
2 Whether the bidder provided solicitations through all reasonable and available means;
3 Whether the bidder provided written notice to all DBEs listed in the DBE directory at the time of the letting who are prequalified in the areas of work that the bidder will be subcontracting;
4 Whether the bidder followed up initial solicitations of interest by contacting DBEs to determine with certainly whether they were interested. If a reasonable amount of DBEs within the targeted districts do not provide an intent to quote or no DBEs are prequalified in the subcontracted areas, the bidder must notify the DBE Liaison in the Office of Minority Affairs to give notification of the bidder's inability to get DBE quotes;
5 Whether the bidder selected portions of the work to be performed by DBEs in order to increase the likelihood of meeting the contract goals. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the prime contractor might otherwise perform these work items with its own forces;
6 Whether the bidder provided interested DBEs with adequate and timely information about the plans, specifications, and requirements of the contract;
7 Whether the bidder negotiated in good faith with interested DBEs not rejecting them as unqualified without sound reasons based on a thorough investigation of their capabilities. Any rejection should be so noted in writing with a description as to why an agreement could not be reached;
8 Whether quotations were received from interested DBE firms but were rejected as unacceptable without sound reasons why the quotations were considered unacceptable. The fact that the DBE firm's quotation for the work is not the lowest quotation received will not in itself be considered as a sound reason for rejecting the quotation as unacceptable. The fact that the bidder has the ability and/or desire to perform the contract work with its own forces will not be considered a sound reason for rejecting a DBE quote. Nothing in this provision shall be construed to require the bidder to accept unreasonable quotes in order to satisfy DBE goals;
9 Whether the bidder specifically negotiated with subcontractors to assume part of the responsibility to meet the contract DBE goal when the work to be subcontracted includes potential DBE participation;
10 Whether the bidder made any efforts and/or offered assistance to interested DBEs in obtaining the necessary equipment, supplies, materials, insurance and/or bonding to satisfy the

work requirements of the bid proposal; and

11 Any other evidence that the bidder submits which may show that the bidder has made reasonable good faith efforts to include DBE participation.

FAILURE TO MEET GOOD FAITH REQUIREMENT

Where the apparent lowest responsive bidder fails to submit sufficient participation by DBE firms to meet the contract goal and upon a determination by the Good Faith Committee based upon the information submitted that the apparent lowest responsive bidder failed to make sufficient reasonable efforts to meet the contract goal, the bidder will be offered the opportunity to meet in person for administrative reconsideration. The bidder will be notified of the Committee's decision within 24 hours of its decision. The bidder will have 24 hours to request reconsideration of the Committee's decision. The reconsideration meeting will be held within two days of the receipt of a request by the bidder for reconsideration.

The request for reconsideration will be heard by the Office of the Secretary. The bidder will have the opportunity to present written documentation or argument concerning the issue of whether it met the goal or made an adequate good faith effort. The bidder will receive a written decision on the reconsideration explaining the basis for the finding that the bidder did or did not meet the goal or made adequate Good Faith efforts to do so.

The result of the reconsideration process is not administratively appealable to the Cabinet or to the United States Department of Transportation.

The Cabinet reserves the right to award the contract to the next lowest responsive bidder or to rebid the contract in the event that the contract is not awarded to the low bidder as the result of a failure to meet the good faith requirement.

SANCTIONS FOR FAILURE TO MEET DBE REQUIREMENTS OF THE PROJECT

Failure by the prime contractor to fulfill the DBE requirements of a project under contract or to demonstrate good faith efforts to meet the goal constitutes a breach of contract. When this occurs, the Cabinet will hold the prime contractor accountable, as would be the case with all other contract provisions. Therefore, the contractor's failure to carry our the DBE contract requirements shall constitute a breach of contract and as such the Cabinet reserves the right to exercise all administrative remedies at its disposal including, but not limited to the following:

- Disallow credit toward the DBE goal;
- Withholding progress payments;
- Withholding payment to the prime in an amount equal to the unmet portion of the contract goal; and/or
- Termination of the contract.

PROMPT PAYMENT

The prime contractor will be required to pay the DBE within seven (7) working days after he or she has received payment from the Kentucky Transportation Cabinet for work performed or materials furnished.

CONTRACTOR REPORTING

All contractors must keep detailed records and provide reports to the Cabinet on their progress in meeting the DBE requirement on any highway contract. These records may include, but shall not be limited to payroll, lease agreements, cancelled payroll checks, executed subcontracting agreements, etc. Prime contractors will be required to submit certified reports on monies paid to each DBE subcontractor or supplier utilized to meet a DBE goal. These reports must be submitted within 14 days of payment made to the DBE contractor.

Payment information that needs to be reported includes date the payment is sent to the DBE, check number, Contract ID, amount of payment and the check date. Before Final Payment is made on this contract, the Prime Contractor will certify that all payments were made to the DBE subcontractor and/or DBE suppliers.

The Prime Contractor should supply the payment information at the time the DBE is compensated for their work. Form to use is located at:
http://transportation.ky.gov/Construction/Pages/Subcontracts.aspx

The prime contractor should notify the KYTC Office of Civil Rights and Small Business Development seven (7) days prior to DBE contractors commencing work on the project. The contact is Melvin Bynes and the telephone number is (502) 564-3601.

Photocopied payments and completed form to be submitted to: Office of Civil Rights and Small Business Development 6th Floor West 200 Mero Street Frankfort, KY 40622

DEFAULT OR DECERTIFICATION OF THE DBE

If the DBE subcontractor or supplier is decertified or defaults in the performance of its work, and the overall goal cannot be credited for the uncompleted work, the prime contractor may utilize a substitute DBE or elect to fulfill the DBE goal with another DBE on a different work item. If after exerting good faith effort in accordance with the Cabinet's Good Faith Effort policies and procedures, the prime contractor is unable to replace the DBE, then the unmet portion of the goal may be waived at the discretion of the Cabinet.

06/20/2014

ASPHALT MIXTURE

Unless otherwise noted, the Department estimates the rate of application for all asphalt mixtures to be 110 lbs/sy per inch of depth.

INCIDENTAL SURFACING

The Department has included in the quantities of asphalt mixtures established in the proposal estimated quantities required for resurfacing or surfacing mailbox turnouts, farm field entrances, residential and commercial entrances, curve widening, ramp gores and tapers, and road and street approaches, as applicable. Pave these areas to the limits as shown on Standard Drawing RPM-110-06 or as directed by the Engineer. In the event signal detectors are present in the intersecting streets or roads, pave the crossroads to the right of way limit or back of the signal detector, whichever is the farthest back of the mainline. Surface or resurface these areas as directed by the Engineer. The Department will not measure placing and compacting for separate payment but shall be incidental to the Contract unit price for the asphalt mixtures.

OPTION A

Be advised that the Department will accept compaction of asphalt mixtures furnished for driving lanes and ramps, at 1 inch (25mm) or greater, on this project according to OPTION A in accordance with Section 402 and Section 403 of the current Standard Specifications. The Department will require joint cores as described in Section 402.03.02 for surface mixtures only. The Department will accept compaction of all other asphalt mixtures according to OPTION B.

HAZARDOUS MATERIAL CAUTION NOTE

An 8" water main that will be abandoned by the City of Morgantown along G.L. Smith Street (US 231) at various locations between approximate Mainline Station 105+00 and approximate Mainline Station 116+00 is an asbestos cement water main. Asbestos cement is considered a hazardous material when being disturbed and/or removed. Removal and disposal of portions of this asbestos cement water main may be required during the construction phase of this project by the roadway contractor. For reference to method of handling, transportation and disposal of asbestos cement, see Special Note for Removal of Existing Asbestos Cement Pipe (attached). Listed below are approximate locations, sizes and quantities of asbestos cement water mains that may require removal and disposal.

SIZE:	LOCATIONS ON MAINLINE:	LINEAR FEET:
8" ACP W.M.	Rt. of Sta. 105+00 to Rt. of Sta. 106+00	100 L.F.
8" ACP W.M.	Mainline Crossing at Sta. 106+00	60 L.F.
8" ACP W.M.	Lt. of Sta. 106+00 to Lt. of Sta. 116+00	1,000 L.F.

Estimated Total: 1,160 L.F.

METHOD OF HANDLING, TRANSPORTATION, AND DISPOSAL OF ASBESTOS CEMENT WATER MAINS
BUTLER COUNTY
FD52 016 0231 011-012
G.L. SMITH STREET (US 231)
ITEM NO. 3-8503.00

All handling, transportation and disposal of asbestos cement pipe shall be in strict accordance with Kentucky Occupational Safety and Health Standards for General Industry, 29 CFR part 1910 as adopted by 803 KAR 2.020 with amendments as of July 31, 1996 and all addenda and revisions to date and the Kentucky Occupational and Health Standards for the Construction Industry, 20 CFR part 1926 as adopted by 793 KRD 2.030 with amendments as of August 31, 1986 and all addenda and revisions to date. A certified asbestos remover/handler (certified by the State of Kentucky) shall be present at all times in the handling, transportation and disposal of asbestos. The Unit Bid price per linear foot of Asbestos Cement Pipe Removal shall include handling, transportation and disposal of asbestos cement pipe.

SPECIAL NOTE FOR
REMOVAL OF EXISTING ASBESTOS CEMENT PIPE

I. DESCRIPTION

This special note covers requirements that apply when the contract requires removal and disposal of existing asbestos cement pipe by the Contractor.

II. REQUIREMENTS

A. General. All handling, transportation and disposal of asbestos cement pipe shall be in strict accordance with the Kentucky Occupational Safety and Health Standards for General Industry, 29 CFR part 1910 as adopted by 803 KAR 2.020 with amendments as of July 31, 1986 and all addenda and revisions to date and the Kentucky Occupational and Health Standards for the Construction Industry, 29 CFR part 1926 as adopted by 793 KAR 2.030 with amendments as of August 31, 1986 and all addenda and revisions to date.

All work shall be accomplished in accordance with the requirements of all applicable federal laws and regulations covering asbestos abatement, and as specified in 401 KAR 63:042.

The Contractor shall also comply with the applicable standards and regulations of any local government agency that may be applicable.

Removal shall be supervised by an asbestos abatement entity certified by the Kentucky Natural Resources and Environmental Protection Cabinet. Disposal shall be accomplished by a KNREPC registered transporter.

Any asbestos cement pipe outside the construction limits that is designated to remain in place shall not be disturbed.

B. Documentation. Upon completion of removal and disposal of the asbestos cement pipe, the Contractor shall furnish to the Engineer a written report, prepared by the asbestos abatement entity, covering the following information:

(a) Name and address of supervisor responsible;

(b) The location and description of the project and the estimated amount of asbestos removed;

(c) Starting and completion date. If the completion date differs from that originally scheduled, include reasons for delay;

(d) Summary of the procedures used to comply with all applicable requirements, including copies of all notifications, if applicable;

(e) Name and address of the waste disposal site and disposal receipts, including the amount of asbestos –containing materials disposed; and

(f) Results of all air sampling conducted during the asbestos abatement project, if applicable, including personal, area and clearance samples.

III. METHOD OF MEASUREMENT

Asbestos cement pipe acceptably removed and disposed of will be measured in linear feet. Contrary to Section 203.02 of the Department's Standard Specifications, asbestos cement pipe removed from within the typical section will be included in the measured quantity.

IV. BASIS OF PAYMENT

The accepted quantity of asbestos cement pipe removed will be paid for at the contract unit price. Such payment shall be full compensation for all work required by this Special Note, including all excavation and acceptable backfill of any remaining cavities, and including full compliance with all laws and regulations for handling, transporting and disposing of asbestos cement pipe.

SPECIAL NOTE

FOR IMPACTS TO INDIANA BAT HABITAT

Butler County

KYTC Item #3-8503

KYTC proposes to clear 0.51 acres of "potential" Indiana bat habitat on this safety improvement project with **tree cutting only to occur between the dates of October 15th through March 31st**. There will be no impacts to winter habitat. No payment will be required by KYTC in accordance with the Programmatic Biological Opinion by the U.S. Fish and Wildlife Service on September 6, 2012 and subsequent amendments thereto.

If there are any questions regarding this note, please contact Joe Plunk, Project Development Branch Manager, Department of Highways, KYTC District 3, 900 Morgantown Rd. Bowling Green, KY 42012; Phone: (270) 746-7898.

Special Note for Erosion Prevention and Sediment Control __Butler_County / Item No _3-8503.00

The Contractor shall be responsible for filing the Kentucky Pollution Discharge Elimination System (KPDES) KYR10 permit Notice of Intent (NOI) with the Kentucky Division of Water (DOW) and any KPDES local Municipal Separate Storm Sewer System (MS4) program that has jurisdiction. The NOI shall name the contractor as the Facility Operator and include the KYTC Contract ID Number (CID) for reference.

The Contractor shall perform all temporary erosion/sediment control functions including: providing a Best Management Practice (BMP) Plan, conducting required inspections, modifying the BMP plan documents as construction progresses and documenting the installation and maintenance of BMPs in conformance with the KPDES KYR10 permit dated September 30, 2003 or a permit re-issued to replace the KYR10 permit. This work shall be conducted in conformance with the requirements of Section 213 of KYTC 2008 Department of Highways, Standard Specifications for Road and Bridge Construction.

Contrary to Section 213.03.03, paragraph 2, the Engineer shall conduct inspections as needed to verify compliance with Section 213 of KYTC 2012 Department of Highways, Standard Specifications for Road and Bridge Construction. The Engineer's inspections shall be performed a minimum of once per month and within seven days after a storm of ½ inch or greater. Copies of the Engineer's inspections shall not be provided to the contractor unless improvements to the BMP's are required. The contractor shall initiate corrective action within 24 hours of any reported deficiency and complete the work within 5 days. The Engineer shall use Form TC 63-61 A for this report. Inspections performed by the Engineer do not relieve the Contractor of any responsibility for compliance with the KPDES permit.

Contrary to Section 213.05, bid items for temporary BMPs will not be listed and will be replaced with one lump sum item for the services. Payment will be pro-rated based on the Project Schedule as submitted by the Contractor and as agreed to by the Engineer.

The contractor shall be responsible for applying "good engineering practices" as required by the KPDES permit. The contractor may use any temporary BMPs with the approval of the KYTC Engineer.

The contractor shall provide the Engineer copies of all documents required by the KPDES permit at the time they are prepared.

The contractor shall be responsible for the examination of the soils to be encountered and make his own independent determination of the temporary BMPs that will be required to accomplish effective erosion prevention and sediment control.

The Contractor shall be responsible for filing the KPDES permit Notice of Termination (NOT) with the Kentucky DOW and any local MS4 program that has jurisdiction. The NOT shall be filed after the Engineer agrees that the project is stabilized or the project has been formally accepted.

US 231 (G.L. Smith Street) 03-8503.00

Project Construction Schedule

1. This project will have a fixed construction schedule. The roadway closure for this project will not be permitted to exceed 130 calendar days and if the roadway is closed to traffic for more than 130 calendar days liquidated damages at a rate of $5,000 per day will be charged for each day or fraction of a day beyond the above stated number of calendar days of allowable road closure. This project has a final completion date of August 31, 2015.

STEVEN L. BESHEAR
GOVERNOR

LEONARD K. PETERS
SECRETARY

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER
200 FAIR OAKS LANE, 4TH FLOOR
FRANKFORT, KENTUCKY 40601
www.kentucky.gov

July 11, 2014

Gina Slaughter
US 231 - Butler Co
900 Morgantown Rd
Bowling Green, KY 42101

Re: KYR10 Coverage Acknowledgment
KPDES No.: KYR10I527
US231.KY70 & Boat Factory Road
Permit Type: Construction
AI ID: 121517
Butler County, Kentucky

Dear Gina Slaughter:

The discharges associated with the Notice of Intent you submitted have been approved for coverage under the "Kentucky Pollutant Discharge Elimination System (KPDES) General Permit for Stormwater Discharges Associated with Construction Activities (KYR10)" permit. This coverage becomes effective the date of this correspondence and will remain effective until the general permit expires or the Division of Water revokes coverage. During this period of coverage all discharges shall comply with the conditions of the applicable general permit. A copy of the general permit the operator is now covered by can be found on our website: http://water.ky.gov.

Any questions concerning the general permit and its requirements should be directed to me at (502) 564-3410.

Facility Site: -86.688140, 37.227954

Sincerely,

Shawn Hokanson
Surface Water Permits Branch
Division of Water

Right-of-Way Certification Form

Revised 2/22/11

☑ Federal Funded ☐ State Funded

☑ Original ☐ Re-Certification

This form must be completed and submitted to FHWA with the PS&E package for federal-aid funded Interstate, Appalachia, and Major projects. This form shall also be submitted to FHWA for all federal-aid projects that fall under Conditions No. 2 or 3 outlined elsewhere in this form. When Condition No. 2 or 3 apply, KYTC shall resubmit this ROW Certification prior to construction contract Award. For all other federal-aid projects, this form shall be completed and retained in the KYTC project file.

Date: May 9, 2014

Project Name: G.L. Smith Street
Letting Date: September 26, 2014
Project #: 12F0 FD52 016 8329501R
County: BUTLER
Item #: 03-8503.00
Federal #: STP 5075 (055)

Description of Project: Construct turn lanes in both directions at the intersection of US 231/KY 70 on to Boat Factory Road.

Projects that require NO new or additional right-of-way acquisitions and/or relocations

☐ The proposed transportation improvement will be built within the existing rights-of -way and there are no properties to be acquired, individuals, families, and businesses ("relocatees") to be relocated, or improvements to be removed as a part of this project.

Projects that require new or additional right-of-way acquisitions and/or relocations

☐ Per 23 CFR 635.309, the KYTC hereby certify that all relocatees have been relocated to decent, safe, and sanitary housing or that KYTC has made available to relocatees adequate replacement housing in accordance with the provisions of the current FHWA directive(s) covering the administration of the Highway Relocation Assistance Program and that at least one of the following three conditions has been met. (Check those that apply.)

☐ **Condition 1.** All necessary rights-of-way, including control of access rights when applicable, have been acquired including legal and physical possession. Trial or appeal of cases may be pending in court but legal possession has been obtained. There may be some improvements remaining on the right-of-way, but all occupants have vacated the lands and improvements, and KYTC has physical possession and the rights to remove, salvage, or demolish all improvements and enter on all land. Fair market value has been paid or deposited with the court.

☐ **Condition 2.** Although all necessary rights-of-way have not been fully acquired, the right to occupy and to use all rights-of-way required for the proper execution of the project has been acquired. Trial or appeal of some parcels may be pending in court and on other parcels full legal possession has not been obtained, but right of entry has been obtained, the occupants of all lands and improvements have vacated, and KYTC has physical possession and right to remove, salvage, or demolish all improvements. Fair market value has been paid or deposited with the court for most parcels. Fair market value for all pending parcels will be paid or deposited with the court prior to AWARD of construction contract. (See note 1 below.)

Note 1: The KYTC shall re-submit a right-of-way certification form for this project prior to AWARD of **all** Federal-Aid construction contracts. Award must not to be made until after KYTC has obtained full legal possession and fair market value for all parcels has been paid or deposited with the court and FHWA has concurred in the re-submitted right-of-way certification.

Right-of-Way Certification Form

Revised 2/22/11

☐ **Condition 3.** The acquisition or right of occupancy and use of a few remaining parcels are not complete and/or some parcels still have occupants. However, all remaining occupants have had replacement housing made available to them in accordance with 49 CFR 24.204. The KYTC is hereby requesting authorization to advertise this project for bids and to proceed with bid letting even though the necessary rights-of-way will not be fully acquired, and/or some occupants will not be relocated, and/or the fair market value will not be paid or deposited with the court for some parcels until after bid letting. KYTC will fully meet all the requirements outlined in 23 CFR 635.309(c)(3) and 49 CFR 24.102(j) and will expedite completion of all acquisitions, relocations, and full payments after bid letting and prior to AWARD of the construction contract or force account construction. A full explanation and reason for this request, including identification of each such parcel and dates on which acquisitions, payments, and relocations will be completed, is attached to this certification form for FHWA concurrence. (See note 2.)

Note 2: The KYTC may request authorization on this basis only in unique and unusual circumstances. Proceeding to bid letting shall be the exception and never become the rule. In all cases, the KYTC shall make extraordinary efforts to expedite completion of the acquisition, payment for all affected parcels, and the relocation of all relocatees prior to AWARD of all Federal-Aid construction contracts or force account construction.

Approved: Kelly R. Divine (Printed Name) _____ (Signature) Right-of-Way Supervisor

Approved: Keith McDonald (Printed Name) _____ (Signature) 5/9/14 KYTC, Director of ROW &Utilities

Approved: _____ (Printed Name) _____ (Signature) FHWA, ROW Officer (when applicable)

No Signature Required
as per FHWA - KYTC
2013 Stewardship Agreement

Right-of-Way Certification Form

Revised 2/22/11

Date: May 9, 2014

Project Name: G.L. Smith Street
Project #: 12F0 FD52 016 8329501R
Item #: 03-8503.00
Letting Date: September 26, 2014

County: BUTLER
Federal #: STP 5075 (055)

This project has 17 total number of parcels to be acquired, and -0- total number of individuals or families to be relocated, as well as -0- total number of businesses to be relocated.

-0- Parcels where acquired by a signed fee simple deed and fair market value has been paid

-0- Parcels have been acquired by IOJ through condemnation and fair market value has been deposited with the court

-0- Parcels have not been acquired at this time (*explain below for each parcel*)

-0- Parcels have been acquired or have a "right of entry" but fair market value has not been paid or has not been deposited with the court *(explain below for each parcel)*

-0- Relocatees have not been relocated from parcels ____, ____, ____, ____, ____, ____, and ____ *(explain below for each parcel)*

Parcel #	Name/Station	Explanation for delayed acquisition, delayed relocation, or delayed payment of fair market value	Proposed date of payment or of relocation

There are -0- billboards and/or -0- cemeteries involved on this project.

There are -0- water or monitoring wells on parcels ____, ____, ____, ____, and ____. All have been acquired and are the responsibility of the project contractor to close/cap.

Form Effective Date: April 1, 2006
Last Revised: February 22, 2011

SPECIAL NOTES FOR UTILITY CLEARANCE
IMPACT ON CONSTRUCTION

BUTLER COUNTY
FD52 016 83295 01 U
US-231, G.L. Smith Street
Item No. 3-8503.00

GENERAL PROJECT NOTE ON UTILITY PROTECTION

The Contractor is fully responsible for protection of all utilities

NOTE: DO NOT DISTURB THE FOLLOWING UTILITIES LOCATED WITHIN THE PROJECT DISTURB LIMITS

ATT-KY has existing buried facilities to remain in place at the following locations: Mainline: Left of and between Sta. 101+00 to Sta. 116+00.

THE FOLLOWING COMPANIES ARE RELOCATING/ADJUSTING THEIR UTILITIES WITHIN THE PROJECT LIMITS AND WILL BE COMPLETE PRIOR TO CONSTRUCTION

Warren RECC has relocated aerial and buried facilities at the following locations: Mainline: Left of and between Sta. 100+00 to Sta. 116+00 with Mainline crossings at Sta. 101+10, 101+92, 108+75, Approach crossings at Logansport Road Sta. 5+69.

ATT-KY has relocated aerial and buried facilities at the following locations: Mainline: Left of and between Sta. 100+00 to Sta. 102+30, Left of and between Sta. 113+95 to Sta. 116+00, Mainline crossings at Sta. 108+75, and 115+50 .

THE FOLLOWING COMPANIES HAVE FACILITIES TO BE RELOCATED/ADJUSTED BY THE COMPANY OR THE COMPANY'S SUBCONTRACTOR AND IS TO BE COORDINATED WITH THE ROAD CONTRACT

Mediacom has proposed aerial and buried facilities at the following locations: Mainline: Left of and between Sta. 100+00 to Sta. 116+00 with Mainline crossings at Sta. 101+10, 101+92, 108+75, Approach crossings at Logansport Road Sta. 5+69; and existing aerial facilities at the following locations: Mainline: Left of and between Sta. 100+00 to Sta. 116+00, with Mainline crossings at Sta. 101+92, 106+75, 107+70, 109+25, 113+70, and Approach crossings at Logansport Road Sta. 6+10.
The company expects to complete their relocation on or before November 15, 2014.

(NOTE: Use the following Text Only If Applicable) The Department will consider submission of a bid as the Contractor's agreement to not make any claims for additional compensation due to delays or other conditions created by the operations of (Utility Company(s) Name). Working days will not be charged for those days on which work on (Utility Company(s) Name) facilities is delayed, as provided in the current

SPECIAL NOTES FOR UTILITY CLEARANCE
IMPACT ON CONSTRUCTION

BUTLER COUNTY
FD52 016 83295 01 U
US-231, G.L. Smith Street
Item No. 3-8503.00

edition of the KY Standard Specifications for Road and Bridge Construction. Should a difference of opinion arise as to the rights of the Contractor and others working within the limits of, or adjacent to the project, the KYTC Resident Engineer will decide as to the respective rights of the various parties involved in order to assure the completion of the Department's work in general harmony and in a satisfactory manner, and his decision shall be final and binding upon the Contractor.

THE FOLLOWING COMPANIES HAVE FACILITIES TO BE RELOCATED/ADJUSTED BY THE ROAD CONTRACTOR AS INCLUDED IN THIS CONTRACT

City of Morgantown Utilities Commission has existing and proposed gas, water and sewer facilities at the following locations:

Existing Gas – Mainline: Left of and between Sta. 100+00 to 103+00, Left of and between Sta. 111+40 to Sta. 112+30, Right of and between Sta. 105+00 to Sta. 116+00 with Mainline crossings at Sta. 100+35, 106+20, 110+65, 112+30, and 113+75.

Proposed Gas – Mainline: Left of and between Sta. 101+00 to 103+00, Right of and between Sta. 104+90 to 116+50, Left of and between Sta. 110+65 to Sta. 113+90, with Mainline crossings at Sta. 106+55, 113+90, and Approach crossings at Boat Factory Road Sta. 5+45.

Existing Water – Mainline: Left and Right of and between Sta. 100+00 to Sta. 103+00, Right of and between Sta. 104+00 to 106+00, Left of and between Sta. 106+00 to 116+00, with Mainline crossings at Sta. 101+50, 106+00, 107+30, and 109+92.

Proposed Water – Mainline: Right of and between Sta. 100+00 to Left Sta. 102+00, Right of and between Sta. 105+10 to Sta. 113+95, Left of and between Sta. 110+45 to Sta. 116+00 with Mainline crossings at Sta. 101+57, 106+65, 113+85, and Approach crossing at Sta. 5+50.

Existing Sewer – Mainline: Left of and between Sta. 105+75 to Sta. 116+00, with Mainline crossings at Sta. 105+70, 108+00, 109+90 and 114+18

Proposed Sewer – Mainline: Left of and between Sta. 105+70 to Sta. 109+40, Left of and between Sta. 110+60 to 116+00, Right of and between Sta. 110+00 to 110+60, with Mainline crossings at Sta. 105+50, 108+00, 109+70, 110+60, and 114+18.

SPECIAL NOTES FOR UTILITY CLEARANCE
IMPACT ON CONSTRUCTION

BUTLER COUNTY
FD52 016 83295 01 U
US-231, G.L. Smith Street
Item No. 3-8503.00

SPECIAL CAUTION NOTE – PROTECTION OF UTILITIES

The contractor will be responsible for contacting all utility facility owners on the subject project to coordinate his activities. The contractor will coordinate his activities to minimize and, where possible, avoid conflicts with utility facilities. Due to the nature of the work proposed, it is unlikely to conflict with the existing utilities beyond minor facility adjustments. Where conflicts with utility facilities are unavoidable, the contractor will coordinate any necessary relocation work with the facility owner and Resident Engineer. The Kentucky Transportation Cabinet maintains the right to remove or alter portions of this contract if a utility conflict occurs.

The utility facilities as noted in the previous section(s) have been determined using data garnered by varied means and with varying degrees of accuracy: from the facility owners, a result of S.U.E., field inspections, and/or reviews of record drawings. The facilities defined may not be inclusive of all utilities in the project scope and are not Level A quality, unless specified as such. It is the contractor's responsibility to verify all utilities and their respective locations before excavating.

BEFORE YOU DIG

The contractor is instructed to call 1-800-752-6007 to reach KY 811, the one-call system for information on the location of existing underground utilities. The call is to be placed a minimum of two (2) and no more than ten (10) business days prior to excavation. The contractor should be aware that owners of underground facilities are not required to be members of the KY 811 one-call Before-U-Dig (BUD) service. The contractor must coordinate excavation with the utility owners, including those whom do not subscribe to KY 811. It may be necessary for the contractor to contact the County Court Clerk to determine what utility companies have facilities in the area.

Please Note: The information presented in this Utility Note is informational in nature and the information contained herein is not guaranteed.

SPECIAL NOTES FOR UTILITY CLEARANCE

IMPACT ON CONSTRUCTION

BUTLER COUNTY
FD52 016 83295 01 U
US-231, G.L. Smith Street
Item No. 3-8503.00

AREA UTILITIES CONTACT LIST

Utility Company/Agency	Contact Name	Contact Information
Warren Rural Electric Coop. Corp.	Jonathan Lindsey	270-842-6541
AT&T - KY	Travis Parsley	270-846-3196
Mediacom Southeast, LLC	Albert Gaboriault	270-527-9939
Morgantown Utilities - Gas, Sewer and Water		
Superintendent	Randell Gaskey	270-526-3623
Bryant Engineering	Steve Weaver	270-685-2811

US 231(G.L. Smith Street) Utility Relocations
City of Morgantown
ASBESTOS ABATEMENT

SECTION 0001

SPECIAL NOTE FOR REMOVAL OF EXISTING ASBESTOS CEMENT PIPE

I. DESCRIPTION

This special note covers requirements that apply when the contract requires removal and disposal of existing asbestos cement pipe by the Contractor.

II. REQUIREMENTS

A. General. All handling, transportation and disposal of asbestos cement pipe shall be in strict accordance with the Kentucky Occupational Safety and Health Standards for General Industry, 29 CFR part 1910 as adopted by 803 KAR 2.020 with amendments as of July 31, 1986 and all addenda and revisions to date and the Kentucky Occupational and Health Standards for the Construction Industry, 29 CFR part 1926 as adopted by 793 KAR 2.030 with amendments as of August 31, 1986 and all addenda and revisions to date.

All work shall be accomplished in accordance with the requirements of all applicable federal laws and regulations covering asbestos abatement, and as specified in 401 KAR 63:042.

The Contractor shall also comply with the applicable standards and regulations of any local government agency that may be applicable.

Removal shall be supervised by an asbestos abatement entity certified by the Kentucky Natural Resources and Environmental Protection Cabinet. Disposal shall be accomplished by a KNREPC registered transporter.

Any asbestos cement pipe outside the construction limits that is designated to remain in place shall not be disturbed.

B. Documentation. Upon completion of removal and disposal of the asbestos cement pipe, the Contractor shall furnish to the Engineer a written report, prepared by the asbestos abatement entity, covering the following information:

(a) Name and address of supervisor responsible;

(b) The location and description of the project and the estimated amount of asbestos removed;

(c) Starting and completion date. If the completion date differs from that originally scheduled, include reasons for delay;

US 231(G.L. Smith Street) Utility Relocations
City of Morgantown
ASBESTOS ABATEMENT

(d) Summary of the procedures used to comply with all applicable requirements, including copies of all notifications, if applicable;

(e) Name and address of the waste disposal site and disposal receipts, including the amount of asbestos –containing materials disposed; and

(f) Results of all air sampling conducted during the asbestos abatement project, if applicable, including personal, area and clearance samples.

III. METHOD OF MEASUREMENT

Asbestos cement pipe acceptably removed and disposed of will be measured in linear feet. Contrary to Section 203.02 of the Department's Standard Specifications, asbestos cement pipe removed from within the typical section will be included in the measured quantity.

IV. BASIS OF PAYMENT

The accepted quantity of asbestos cement pipe removed will be paid for at the contract unit price. Such payment shall be full compensation for all work required by this Special Note, including all excavation and acceptable backfill of any remaining cavities, and including full compliance with all laws and regulations for handling, transporting and disposing of asbestos cement pipe.

END OF SECTION

SECTION 0002
SHORING AND BRACING

PART 1 GENERAL

1.01 SUMMARY

A. Shore and brace sidewalls in deep excavations with steel sheet, soldier piles or timber lagging as required to protect existing buildings, utilities, roadways, and improvements. Prevent cave-ins, loss of ground, or damage to people and property.

B. Maintain shoring and bracing during construction activities, and remove shoring and bracing if practical when construction and filling is complete.

1 02 SUBMITTALS

Submit for approval shop drawings and information on methods proposed for use.

1.03 QUALITY ASSURANCE

Comply with governing codes and regulations. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.01 MATERIALS

A. Sheet Steel: Heavy-gauge steel sheet suitable for service.

B. Soldier Piles: Steel H-beams in serviceable condition.

C. Timber Lagging: Heavy timber pressure treated with wood preservative.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in proper relation with adjacent construction. Coordinate with work of other sections.

B. Locate shoring and bracing to avoid permanent construction. Anchor and brace to prevent collapse.

END OF SECTION

SECTION 0003
EXCAVATING, BACKFILLING AND COMPACTING FOR UTILITIES

PART 1 GENERAL

1.01 WORK INCLUDED

The Contractor shall make excavations in such widths and depths as will give suitable room for below grade vaults, pump stations, etc., laying pipe to the lines, grades and elevations, furnish, place and compact all backfill materials specified herein or denoted on the Drawings. The materials, equipment, labor, etc., required herein are to be considered as part of the requirements and costs for installing the various pipes, structures and other items they are incidental to.

PART 2 PRODUCTS

2.01 MATERIALS

A. Crushed stone material shall conform with the requirements of the applicable sections of the Kentucky Department of Highways Standard Specifications and shall consist of clean, hard, and durable particles or fragments, free from dirt, vegetation or objectionable materials.

B. Two classes of backfill material are used in this Section. The type of material in each class is as follows:

1. Class I -Angular crushed stone or gravel i.e., No. 8, 9, 11 or 57 as defined in the Kentucky Department of Highways Standard Specifications for Road and Bridge Construction, latest edition.

2. Class II -Dense Graded Aggregate (DGA).

PART 3 EXECUTION

3.01 EXCAVATION OF TRENCHES

A. Unless otherwise directed by the Engineer, trenches are to be excavated in open cuts.

1. Where pipe is to be laid in gravel bedding or concrete cradle, the trench may be excavated by machinery to, or just below, the designated subgrade, provided that the material remaining at the bottom of the trench is no more than slightly disturbed.

2. Where pipe is to be laid directly on the trench bottom, the lower part of

trenches in earth shall not be excavated to subgrade by machinery. However, just before the pipe is to be placed, the last of the material to be excavated shall be removed by means of hand tools to form a flat or shaped bottom, true to grade, so that the pipe will have a uniform and continuous bearing and support on firm and undisturbed material between joints except for limited areas where the use of pipe slings may have disturbed the bottom.

B. Trenches shall be sufficient width to provide working space on each side of the pipe and to permit proper backfilling around the pipe.

1. The Contractor shall remove only as much of any existing pavement as is necessary for the prosecution of the Work. The pavement shall be cut with pneumatic tools, without extra compensation to the Contractor, to prevent damage to the remaining road surface. Where pavement is removed in large pieces, it shall be disposed of before proceeding with the excavation.

C. All excavated materials shall be placed a safe distance back form the edge of the trench.

D. Unless specifically directed otherwise by the Engineer, not more than 300 feet. of trench shall be opened ahead of the pipe laying work of any one crew, and not more than 300 feet of open ditch shall be left behind the pipe laying work of anyone crew. Watchmen or barricades, lanterns and other such signs and signals as may be necessary to warn the public of the dangers in connection with open trenches, excavations and other obstructions, shall be provided by and at the expense of the Contractor.

E. When so required, or when directed by the Engineer, only one-half of street crossings and road crossings shall be excavated before placing temporary bridges over the side excavated, for the convenience of the traveling public. All backfIlled ditches shall be maintained in such manner that they will offer no hazard to the passage of traffic. The convenience of the traveling public and the property owners abutting the improvements shall be taken into consideration. All public or private drives shall be promptly backfilled or bridged at the direction of the Engineer.

F. Trench excavation shall include the removal of earth, rock, or other materials encountered in the excavating to the depth and extent shown or indicated on the Drawings.

3.02 GRAVITY SEWER AND FORCE MAIN PIPE BEDDING

A. Piping for gravity sewers and force mains shall be supported as follows:

1. All sewer piping shall be laid on a bed of granular material except when a concrete encasement situation occurs. All pipe bedding material shall be Class I and shall be placed to a depth of 4 inches in an earth trench and 6 inches in a rock trench. Aggregate bedding shall be graded to provide for a uniform and continuous support beneath the pipe at all points. Bedding shall extend the full width of the trench.

B. After each pipe has been brought to grade, aligned, and placed in final position, Class I material shall be deposited and densified under the pipe haunches and on each side of the pipe up to the spring line of the pipe to prevent lateral displacement and hold the pipe in proper position during subsequent pipe jointing, bedding, and backfilling operations.

C. In wet, yielding and mucky locations where pipe is in danger of sinking below grade or floating out of grade or line, or where backfill materials are of such a fluid nature that such movements of pipe might take place during the placing of the backfill, the pipe must be weighted or secured permanently in place by such means as will prove effective. With the concurrence of the Engineer, the Contractor may place a flowable fill as defined in Section 5.4.2 Fill Materials, Geotechnical Engineering Study by ATEC, dated October 6, 1995, in lieu of eliminating unsuitable materials.

D. Where an unstable (i.e., water, mud, etc.) trench bottom is encountered, stabilization of the trench bottom is required. This is to be accomplished by undercutting the trench depth and replacing to grade with a foundation of crushed stone aggregate.

E. The depth of the foundation is dependent upon the severity of the trench bottom. The size of stone aggregate used in the foundation will be determined by the condition of the unstable material. Once the trench bottom has been stabilized, the required Class I bedding material can be placed.

F. It should be noted that no pipe shall be laid on solid or blasted rock.

G. Pipe bedding as required in Paragraphs A, B, and D of this Section is not considered a separate pay item.

3.03 GRAVITY SEWER AND FORCE MAIN BACKFILL

A. Initial Backfill:

1. This backfill is defined as that material which is placed over the pipe from the spring line to a point 6 inches above the top of the pipe. For gravity sewer piping the material shall be Class I and may be machine placed

without compaction. Uneven places in the backfill shall be leveled by hand. For force main piping, initial backfill material shall be earth material free of rocks, acceptable to the Engineer or with Class I material when a condition exists mentioned in Paragraph A, 3 below.

2. Material used, whether earth or Class I, in the initial backfilling is not a separate pay item. Payment for the material is included in the unit price per linear foot of gravity sewer or force main.

3. In areas where large quantities of rock are excavated and the available excavated earth in the immediate vicinity is insufficient for placing the required amount of backfill over the top of the pipe as set forth in, Paragraph A.l, the Contractor shall either haul in earth or order Class L material for backfilling over the pipe. Neither the hauling and placement of earth nor the ordering and placement of Class I material to fulfill the backfill requirements set forth herein is considered a separate pay item.

B. Final Backfill:

1. There are two cases where the method of final backfilling varies. The various cases and their trench situations are as follows:

a. Case I -Areas not subject to vehicular traffic.

b. Case II -Paved areas including streets, drives, parking areas, and walks.

2. In all cases, walking or working on the completed pipelines, except as may

be necessary in backfilling, will not be permitted until the trench has been backfilled to a point 6 inches above the top of the pipe. The method of final backfilling for each of the above cases is as follows:

a. Case I -The trench shall be backfilled from a point 6 inches above the top of the pipe to a point 8 inches below the surface of the ground with earth material free from large rock (over one-half cubic foot in volume), acceptable to the Engineer. The remainder of the trench shall be backfilled with earth material reasonably free of any rocks.

b. Case II -The trench shall be backfilled from a point 6 inches above the top of the pipe to a point 12 inches below the existing pavement surface with Class I material. The backfill shall be mechanically tamped in approximately 6-inch layers to obtain a compaction of 95 percent density as measured by the modified

Procter Test. The remaining backfill shall be Class II (dense graded aggregate) material mechanically tamped to the compaction as required above for Class I material. The trench may be left with a slight mound if permitted by the Engineer. Where required by state or local regulations, a bituminous binder coarse detailed on the Drawings and specified herein shall be incorporated in the final backfill.

3. Earth and Class I material used in final backfill is not a separate pay item. Payment shall be included in the price of gravity sewer and force main

4. Class II material used in final backfill shall be included in the unit price for gravity sewer and force main.

C. A sufficient amount of Class II material shall be stockpiled to insure immediate replacement by the Contractor of any settled areas. No extra payment will be made for the filling in of settled or washed areas by the Contractor.

D. Excavated materials from trenches, in excess of quantity required for trench backfill, shall be disposed of by the Contractor. It shall be the responsibility of the Contractor to obtain location or permits for its disposal, unless specific waste areas have been designated on the Drawings or noted in these Specifications. The cost of disposal of excess excavated materials, as set forth herein, no additional compensation being allowed for hauling or overhaul.

END OF SECTION

US 231(G.L. Smith Street) Utility Relocations
City of Morgantown
MORGANTOWN UTILITIES SPEC

SECTION 0004
MORGANTOWN UTILITIES SPEC

1. NEW AND RE-INSTATED SERVICE LINES 192.725

Each service line to be re-instated must be tested in the same manner as a new service. (Both steel and plastic) Residential Service lines must have an EFC “Excess Flow Valve” installed if it’s non-existing.

2. Line Markers

A. Buried Pipelines

A line marker must be placed and maintained as close as practically over each buried main and transmission line at each crossing of a public road, railroad, and navigable waterway, and wherever necessary to identify the location of the transmission line or main to reduce the possibility of damage or interference. (192.707)

B. Pipelines Aboveground

Line marker must be placed and maintained along each section of a main and transmission line that is located aboveground in an area that is accessible to the public.
(192.707)

C. Marker Format

Line Marker shall conform to Federal Regulations.
(192.707 (d) and (192.707) (e)

3. Test Requirements

A. Except for services lines and plastic pipelines, each segment of a pipeline that is to be operated at a hoop stress less than thirty (30) percent of specified minimum yield strength (SMYS) and above 100 psig must be tested in accordance with the following:

1. The pipeline operator must use a test that will ensure the discovery of all potentially hazardous leaks in segment being tested.

2. If, during the test, the segment is to be stressed to twenty (20) percent or more of SMYS and natural gas, inert gas, or air is the test medium, then a leak test must be made at a pressure between 100 psig and the pressure required to produce a hoop stress of

US 231(G.L. Smith Street) Utility Relocations
City of Morgantown
MORGANTOWN UTILITIES SPEC

twenty (20) percent of SMYS, or the line must be walked to check for leaks while the hoop stress is held at approximately twenty (20) percent of SMYS.

3. The pressure must be maintained at or above the test pressure for at least one (1) hour. (192.507)

B. Pipelines operated at or below 100 psig, except for service lines and plastic pipelines, must be leak tested in a manner that assures the discovery of all potentially hazardous leaks. Each main operated at less than one (1) psig must be tested to at least (10) psig and each main that is to operated at or above one (1) psig must be tested to at least ninety (90) psig. (192.509)

C. Service lines, other than plastic, must be tested in accordance With this section. If feasible, it must be given a leakage test that includes the service line connection; if not feasible, it must be given a leakage test at the operating pressure when placed in service. Each segment of a service line, other than plastic, intended to operate at a pressure of at least one (1) psig but not more than forty (40) psig must be given a leak test at a pressure not less than fifty (50) psig. A service line intended to be operated at pressures greater than forty (40) psig must be tested to at least ninety (90) psig. (192.511)

D. For plastic pipelines, the test pressures must be at least 150 percent of the maximum operating pressure or fifty (50) psig, whichever is greater. The maximum test pressure may not exceed three (3) times the design test pressure of the pipe. The temperature of the thermoplastic material may not exceed 100 degrees Fahrenheit during the test. (192.513)

4.

A. Plastic pipe that is not encased must have an electrically conducting wire for locating the pipe while it is underground. Tracer wire may not be wrapped around the pipe and contact with the pipe must be minimized but is not prohibited. Tracer wire installed for pipe locating purposes must be 12 gage One Conductor Solid Copper. Underground. UL Rated Direct Burial.

B. *tracer wire* connections between one spool of *trace wire* to another, and other similar connections shall be made using a direct bury *wire nut (U*L Listed and CSA Certified)

US 231(G.L. Smith Street) Utility Relocations
City of Morgantown
MORGANTOWN UTILITIES SPEC

5. All gas line taps 2” and larger must be weld in fitting

6. A min of 2’ cover over all lines gas, water and sewer mains

7. Class 200 or better for water and sewer mains

8. All mechanical fittings (if applicable) for water and sewer 4” and bigger will have GripRing Pipe Restrainer.

END OF SECTION

US 231(G.L. Smith Street) Utility Relocations
City of Morgantown
WATER MAIN

SECTION 0005
WATER MAIN

SPECIAL CONDITIONS

1. **Contractor Experience** - No Contractor shall be allowed to construct facilities unless they have three prior experiences in constructing similarly complex facilities.

2. **Regulation Compliance** - It is the Contractor's responsibility to comply with all local, state, and federal regulations pertaining to the installation of water facilitates.

3. **Maintaining Service** - No service to existing customers is allowed to be disconnected without express permission of Morgantown Utilities. If service is allowed to be disrupted all notifications and water quality testing shall be the responsibility of Contractor. Contractor is to submit shut down procedure and the notification for approval.

4. **Operation of Existing Facilities** - No existing facilities shall be operated by Contractor. No facilities shall be tapped into without Morgantown Utilities's presence. Existing Morgantown Utilities facilities shall be operated by Morgantown Utilities personnel.

5. **Construction Notification** - Contractor must notify Morgantown Utilities two (2) working days before construction is to begin. If start date is missed, the Contractor must reschedule with Morgantown Utilities. Pre-notification shall be utilized to have a pre-construction meeting.

   The Contractor shall notify one of the following Morgantown Utilities personnel at least 48 hours prior to making any tie-ins to existing mains:

   Mr. Randell Gaskey, Utilities Superintendent (270) 5267565
   Mr. Chris Phelps, Morgantown Utilities (270) 999-2328

   Morgantown Utilities personnel shall be responsible for closing any valves that will affect service to the public.

Any customers that will be without water service due to tie-ins of new mains or changeover of meters will be notified by the Contractor in writing, at least 48 hours in advance of the planned beginning of the shutdown. All effort should be made by the contractor to minimize shut down time. No customer will be without water for more than 8 hours. If the Contractor knows that a shutdown will last longer than 8 hours, he will be required to provide customers with temporary service in order to allow additional time for making tie-ins and reconnections. Prior to customer service being resumed, it will be the responsibility of the Contractor to notify all affected customers of the need to boil their water if such notification is required.

6. **Inspection** - No installed facilities shall be covered up until Morgantown Utilities and/or their Designated Representative has inspected and approved them.

7. **Permits** - It is the responsibility of the Contractor to obtain any permits which may be required by the City, County, State, or other for this project.

8. **Pressure & Leakage Test** - Morgantown Utilities and/or their Designated Representative must be on site during the required pressure and leakage test.

9. **Water Quality Testing –** Morgantown Utilities will perform all water quality testing unless Contractor is given specific approval to utilize an approved independent testing laboratory.

10. **Damage to Utilities** – Any damage to existing utilities incurred during construction shall be the sole responsibility of the Contractor. In the event that any utility is damaged, repairs must be carried out on an around-the-clock basis until the utility is restored. All repairs shall be made at the direction of the utility company, and in accordance with the specifications.

11. **Pipe Cover and Grades** – The Contractor shall install all pipe to the lines and grades indicated on the plans and maintain the cover shown. A 2’ minimum cover will be maintained unless a depth is called for

on the plans or is approved by Morgantown Utilities.

The main shall be generally installed to the grades indicated on the plans with necessary adjustments made to conform to field conditions. The Contractor shall install piping so as to slope in the indicated direction so that high points and low points can be avoided as much as possible. The plans indicate high points and show air release valves to be installed at those locations.

12. **Water** – A reasonable amount of water for testing, sterilization, and flushing shall be furnished by Morgantown Utilities at no cost to the Contractor.
Wasted water through use or accident will be charged to the Contractor.

13. **Field Conditions** – The Contractor should be aware that the locations of existing water mains are shown on the plans at locations determined from best available information. The actual locations may vary in the field and tie-in lengths and depths may have to change to fit the actual conditions. Before tie-ins are made, the Contractor should unearth the existing water main to determine the exact location and elevation so that necessary adjustments in line and grade can be made.

14. **Hot Taps** – The Contractor shall use a full circle stainless steel tapping sleeve (Mueller Catalogue No. H-304 or equal) on the hot tap as per detail in the plans. Tapping valve shall be supported by solid concrete blocking.

15. **Shop Drawings** – The Contractor shall furnish seven (3) copies of shop drawings to the Engineer for review prior to having materials and equipment shipped. Shop drawings for this project shall include but are not limited to the following:

    1. Ductile Iron Pipe Water Main
    2. Polyvinyl Chloride Pipe C-900 Water Main
    3. Ductile Iron Pipe Fittings (Mega Lug Restrained Joint for PVC Pipe)
    4. Steel Casing Pipe

5. Warning Tape
6. Pipe Spacers
7. Gate Valves
8. Hot Tap Equipment
9. Valve Boxes
10. Fire Hydrants
11. Water Meters
12. Meter Setters
13. Meter Boxes
14. Meter Frames and Covers
15. Corporation Stops
16. Tapping Saddles
17. Tracer Wire
18. Customer Service Line
19. Air Release Valves and Appurtenant Small Piping
20. Line Stops

No shop drawing required for material purchased from Morgantown Utilities.

16. Mechanical Joint Fittings – All mechanical joint fittings shall have mega-lug restraint joints. Thrust Blocking is an acceptable alternative.

17. Thrust Blocking – All bends and fittings in either the horizontal or vertical direction shall have concrete thrust blocking installed as per the details shown in the plans. Cost of all thrust blocking shall be merged into the Contractor's per foot price for pipe installation.

Fire Hydrant – The Contractor shall furnish and install 4 ½ M & H MODEL 129 Fire HydrantS which are Morgantown Utilities standard. An elevation for the breakaway flange of the fire hydrant shall be 0 to 4 inches above finished ground. It will be the Contractor's responsibility to set each hydrant at the indicated location and elevation by providing the necessary extensions, fittings, etc., which may be required. Fire hydrant pumper nozzle shall face toward the centerline of the road for access by emergency and utility personnel. It will be the Contractor's responsibility to adjust hydrant heights after final grading to meet the field conditions.

US 231(G.L. Smith Street) Utility Relocations
City of Morgantown
WATER MAIN

18. **Water Main Disinfection** – All main disinfection and bacteriological testing shall be performed prior to tie-in work being done. Any short sections of piping or fittings necessary for making final tie-ins will be swabbed or sprayed with high concentration (greater than 200 parts per million) chlorine solution prior to installation and the line thoroughly flushed after installation. Morgantown Utilities will perform all water quality testing unless the Contractor is given specific approval to utilize an approved independent testing laboratory.

19. **Flowable Fill** – Water main trenches under all roadways shall be backfilled with sand to 6" above pipe followed by flowable fill .

20. **Tracer Wire and Warning Tape** – Tracer wire shall be stubbed up into all valve boxes, excess wire shall be rolled and placed in valve box. Tracer wire shall be properly spliced at all locations where it is joined together. The installation and splice shall be made as per the detail in the plans. If required, water line warning tape shall be installed between 12" and 24" below the finished ground elevation above the water main along the entire length of the main.

21. **Polyethylene Wrap** – Where thrust blocks are utilized, all pipe fittings and valves shall be wrapped with a polyethylene material, 8-mil, installed in accordance with AWWA C-105 and approved by inspector before thrust block is poured.

22. **Plugs and Restraints** – All plugs shall require concrete kickers and be restrained by using all thread on the active side of the cut and plug.

23. **Morgantown Utilities Standard Materials:**

    4 ½ M & H MODEL 129 Fire Hydrant

    Ford Meters as called out in section 62

Restraint Glands – PVC
DIP
These materials are standard and must be used.

24. Final Water Valve Box Adjustment – The elevations shown on plan sheets for air release manhole castings, fire hydrants and valve boxes are only approximate. The final adjustment shall be made following the completion of the road work.

Section 15105

DUCTILE IRON PIPE AND FITTINGS

(Contractor Furnished)

Part 1: GENERAL:

1.01 Coordination of Work

Connection to existing pipelines may require shutdown of OWNER facilities. Construction work and connection shall be closely coordinated with the OWNER through the ENGINEER, in consult with the OWNER, may select the time, including Saturdays, Sundays, or holidays, which, in the opinion of the ENGINEER, will cause the least inconvenience to the ENGINEER and/or its customers, for connection to existing pipelines, and the CONTRACTOR will perform such connections at such times as may be directed by the OWNER at the Contract prices and no claim for premium time or additional costs will be made by the CONTRACTOR.

US 231(G.L. Smith Street) Utility Relocations
City of Morgantown
WATER MAIN

1.02 Related Work

Piping – General Provisions – Section 15000

Part 2: PRODUCTS

2.01 Pipe Material

Contractor will furnish and CONTRACTOR shall install all ductile iron pipe and fittings. Materials to be furnished by CONTRACTOR are included in Section SSC-1000.1.03 of the Specifications Special Conditions.

Research has documented that certain pipe materials (such as polyvinyl chloride, polyethylene, and polybutylene) and certain elastomers (such as those used in gasket material) may be subject to permeation by lower-molecular weight organic solvents or petroleum products. Products supplied under this section have been selected based on the non-expectation of encountering petroleum products of organic solvents. If during the course of pipeline installation the CONTRACTOR identifies, or suspects, the presence of petroleum products or any unknown chemical substance the ENGINEER is to be notified immediately. Installation of any further piping in the area of suspected contamination shall be stopped until direction is provided by the ENGINEER.

Part 3: EXECUTION

3.01 Installation

The provisions specified in Section 15000 shall be strictly followed in addition to the following requirements:

A. Push-on Joints

The surface with which the rubber gasket comes in contact shall be thoroughly cleaned just prior to assembly. The gasket shall then be inserted into the groove in the bell. Before starting joint assembly, a liberal coating of special lubricant shall be applied to the gasket and the spigot end is pushed home.

B. Mechanical Joints

All components shall be cleaned and lubricated with soapy water prior to assembly. Slip the follower gland and gasket over the pipe plain end making sure the small side of the gasket and lip of the gland face the bell socket. Insert the plain end into socket. Push gasket into position with fingers, gasket should be evenly seated. Slide gland into

position, insert bolts and tighten nuts by hand. Bolts are then tightened alternately (across from one another) to the following normal torques:

Bolt Size	Range of Torque in Foot-Pounds
5/8”	40 – 60
¾”	60 – 90
1”	70 – 100
1-1/4”	90 – 120

C. Restrained Joints

(1) Ball and Socket

Assemble and install the ball and socket joint according to the manufacturer’s recommendations. The joint shall be thoroughly cleaned and lubricated. Check the retainer ring fastener.

(2) Push-on

Assemble and install the push-on joint according to the manufacturer’s recommendations. The joint shall be thoroughly cleaned and lubricated. Check the retainer ring fastener.

Section 15106

DUCTILE IRON PIPE AND FITTINGS

(Contractor Furnished)

Part 1: GENERAL

1.01 Coordination of Work

Connection to existing pipelines may require shutdown of OWNER facilities. Construction work and connections shall be closely coordinated with the OWNER through the ENGINEER, in consult with the OWNER through the ENGINEER. The ENGINEER, in consult with the OWNER, may select the time, including Saturdays, Sundays, or holidays, which, in the opinion of the ENGINEER, will cause the least inconvenience to the ENGINEER and/or its customers, for connection to existing pipelines, and the CONTRACTOR will perform such connections at such times as may be directed by the OWNER at the Contract prices and no claim for premium time or additional costs will be made by the CONTRACTOR.

US 231(G.L. Smith Street) Utility Relocations
City of Morgantown
WATER MAIN

1.03 Related Work

Piping – General Provisions – Section 15000

1.04 Submittals

Shop drawings and manufacturer's literature for all CONTRACTOR supplied materials shall be promptly submitted to the ENGINEER for approval in accordance with Section 1300.

Part 2: PRODUCTS

2.01 Pipe Material

Research has documented that certain pipe materials (such as polyvinyl chloride, polyethylene, and polybutylene) and certain elastomers (such as those used in gasket material) may be subject to permeation by lower-molecular weight organic solvents or petroleum products. Products supplied under this section have been selected based on the non-expectation of encountering petroleum products of organic solvents. If during the course of pipeline installation the CONTRACTOR identifies, or suspects, the presence of petroleum products or any unknown chemical substance the ENGINEER is to be notified immediately. Installation of any further piping in the area of suspected contamination shall be stopped until direction is provided by the ENGINEER.

2.01 Pipe Material

A. General

Ductile iron pipe shall conform to the latest specifications as adopted by the American National Standards Institute, Inc., (ANSI) and the American Water Works Association (AWWA). Specifically, ductile iron pipe shall conform to ANSI / AWWA C151/A21.51.

The pipe shall be coated outside with a bituminous coating in accordance with ANSI / AWWA C151/A21.51. The pipe interior shall be cement mortar lined and seal coated in compliance with the latest revision of ANSI / AWWA C104/A21.4. The cement mortar lining shall be double thickness.

B. Pipe Class

The class of pipe to be furnished shall be in accordance with Table 1 and the below listed notes.

US 231(G.L. Smith Street) Utility Relocations
City of Morgantown
WATER MAIN

Table 1

Rated Working Pressure and Maximum Depth of Cover For Ductile Iron Pipe Manufactured in Accordance With ANSI /AWWA C151/A21.51

Pipe Size Inches	Thick. Class	Nominal Thick. Inches	Rated Water Working Pressure Psi +	Type 1 Max.	Laying Type 2 Depth	Condition Type 3 Of Cover,	Type 4 Feet	Type 5
6	50	0.25	350	32	38	44	56	75
8	50	0.27	350	25	30	36	46	64
12	50	0.31	350	17	22	27	36	64
16	50	0.34	350	13	17	21	30	47
20	50	0.36	300	10	14	18	27	38
24	50	0.38	250	8	12	17	23	31

NOTES:
1. Larger pipe sizes up to 54-inch can be installed as Class 50 with cover up to nine (9) feet and an operating pressure of 200 psi. when trench depths exceed fifteen (15) feet for pipe sizes of 16-inch or larger, Class 51 pipe should be used.
2. The thickness of Class 50 ductile iron pipe is adequate to support ¾ and 1-inch corporations. For the installation of equipment requiring a larger tap (i.e., air relief valves or larger corporations) a full saddle is required due to limited wall thickness.
3. There are special conditions where a larger wall thickness is required. At treatment plant or booster station sites where frequent excavation can be anticipated in the vicinity of pipe, Class 54 pipe shall be installed to minimize external damage to the pipe from trenching equipment. Class 56 pipe is required where the pipeline is laid on a river channel bottom to prevent external damage to the pipe and minimize the potential for costly pipe replacement.

C. Testing

Each length of pipe shall be subjected to a hydrostatic proof test as required by ANSI / AWWA C151/A21.51.

D. Joints

1. Mechanical and Push-on

Mechanical and push-on joints including accessories shall conform to ANSI / AWWA C111/A21.11

2. Flanged

Flanged joints shall conform to ANSI / AWWA C110/A21.10 or ANSI B16.1 for fittings and ANSI / AWWA C115/A21.15 for pipe. Flanged joints shall not be used in underground installations except within structures.

All flanged joints shall be furnished with 1/8-inch thick, red rubber or styrene butadiene rubber gaskets. The bolts shall have American Standard heavy unfinished hexagonal head and nut dimensions all as specified in American Standard for Wrench Head Bolts and Nuts and Wrench Openings (ANSI B18.2). For bolts of 1-3/4-inches in diameter and larger, bolt studs with a nut on each end are recommended. Material for bolts and nuts shall conform to ASTM A107.

2.02 Fittings

A. Ductile Iron Fittings

Standard fittings shall be ductile iron conforming to ANSI / AWWA C110/A21.10. Compact ductile iron fittings shall meet the requirements of ANSI / AWWA C153/A21.53.

1. Working Pressure

Fittings shall be suitable for the following working pressures unless otherwise noted:

Pressure in Pounds per Square inch

Size	Compact Ductile Iron	Standard Ductile Iron
3” – 24”	350	350
30” – 48”	350	250

2. Coating and Lining

The fittings shall be coated with a bituminous coating in accordance with ANSI / AWWA C110/A21.10 and lined inside with cement mortar and seal coated in accordance with ANSI / AWWA C104/A21.4. The cement mortar lining shall be double thickness.

B. Joints

1. Mechanical and Push-on

Mechanical and push-on joints including accessories shall conform to ANSI / AWWA C111/A21.11

2. Flanged

Flanged joints shall meet the requirements of ANSI / AWWA C115/A21.15 or ANSI B16.1 or ANSI / AWWA C115/A21.15. Flanged joints shall not be used in underground installations except within structures.

All flanged joints shall be furnished with a minimum 1/8-inch thick, red rubber or styrene butadiene rubber gasket. The bolts shall have American Standard heavy unfinished hexagonal head and nut dimensions all as specified in ANSI B18.2. For bolts of 1-3/4-inches in diameter and larger, bolt studs with a nut on each end are recommended. Material for bolts and nuts shall conform to ASTM A107.

3. Restrained

When restrained joints are required, for pipe and fittings, they shall be of the boltless push-on type which provides joint restraint independent of the joint seal. Restrained system shall be suitable for the following working pressures:

Size	Pressure in Pounds per Square inch
4” – 12”	250
14” – 24”	350
30” – 50”	250

Part 3: EXECUTION

3.01 Installation

The provisions specified in Section 15000 shall be strictly followed in addition to the following requirements:

A. Push-On Joints

The surfaces with which the rubber gasket comes in contact shall be thoroughly cleaned just prior to assembly. The gasket shall then be inserted into the groove in the bell. Before starting joint assembly, a liberal coating of special lubricant shall be applied to the gasket and the spigot end. With the spigot end centered in the bell, the spigot end is pushed home.

B. Mechanical Joints

All components shall be cleaned and lubricated with soapy water prior to assembly. Slip the follower gland and gasket over the pipe plain end making sure the small side of the gasket and lip of the gland face the bell socket. Insert the plain end into socket. Push gasket into position with fingers, gasket should be evenly seated. Slide gland into

position, insert bolts and tighten must by hand. Bolts are then tightened alternately (across from one another) to the following normal torques:

Bolt Size	Range of Torque in Foot-Pounds
5/8”	40 – 60
¾”	60 – 90
1”	70 – 100
1-1/4”	90 – 120

C. Restrained Joints

1. Ball and Socket

Assemble and install the ball and socket joint according to the manufacturer’s recommendations. The joint shall be thoroughly cleaned and lubricated. Check the retainer ring fastener.

2. Push-On

Assemble and install the push-on joint according to the manufacturer’s recommendations. The joint shall be thoroughly cleaned and lubricated. Check the retainer ring fastener.

During “pushing home” of any style piping timber shall be placed between the jacking device (backhoe bucket, pipe jack, etc.) and the pipe being driven home.

Section 15121

POLYVINYL CHLORIDE (PVC) PIPE

(CONTRACTOR furnished)

Part 1: GENERAL

1.01 Scope

This Section covers PVC pressure pipe in diameters 4 inches through 12 inches.

1.02 Coordination of Work

Connection to existing pipelines may require shutdown of OWNER facilities. Construction work and connections shall be closely coordinated with the OWNER

through the ENGINEER, in consult with the OWNER through the ENGINEER. The ENGINEER, in consult with the OWNER, may select the time, including Saturdays, Sundays, or holidays, which, in the opinion of the ENGINEER, will cause the least inconvenience to the ENGINEER and/or its customers, for connection to existing pipelines, and the CONTRACTOR will perform such connections at such times as may be directed by the OWNER at the Contract prices and no claim for premium time or additional costs will be made by the CONTRACTOR.

1.03 Submittals

Shop drawings and manufacturer's literature for all CONTRACTOR supplied materials shall be promptly submitted to the ENGINEER for approval in accordance with Section 1300.

1.04 Related Work

Piping – General Provisions – Section 15000

Part 2: PRODUCTS

Research has documented that certain pipe materials (such as polyvinyl chloride, polyethylene, and polybutylene) and certain elastomers (such as those used in gasket material) may be subject to permeation by lower-molecular weight organic solvents or petroleum products. Products supplied under this section have been selected based on the non-expectation of encountering petroleum products of organic solvents. If during the course of pipeline installation the CONTRACTOR identifies, or suspects, the presence of petroleum products or any unknown chemical substance the ENGINEER is to be notified immediately. Installation of any further piping in the area of suspected contamination shall be stopped until direction is provided by the ENGINEER.

2.02 Pipe Materials

PVC pipe shall conform to the latest edition of American Water Works Association (AWWA) Standard C900 with elastomeric-gasket couplings in accordance with this Standard. The use of solvent cement connections shall not be allowed unless approved by the ENGINEER.

Part 3: EXECUTION

3.01 Installation

The general provisions provided in Specification Section 15000 shall be strictly followed in addition to the following:

A. Pipe Joint Assembly

The assembly of joints should be performed as recommended by the pipe manufacturer. The elastomeric gaskets may be supplied separately in cartons or positioned in the bell joint or coupling at the factory. When gaskets are color coded, be sure to consult the pipe manufacturer or his literature for the significance. In all cases, clean the gasket, the bell or coupling interior, especially the groove area (except when gasket is permanently installed) and the spigot area with a rag, brush or paper towel to remove any dirt or foreign material before the assembling. Inspect the gasket, pipe spigot bevel, gasket groove, and sealing surfaces for damage or deformation. When gaskets are separate, use only gaskets which are designed for and supplied with the pipe. Insert them as recommended by the manufacturer.

Lubricant should be applied as specified by the pipe manufacturer. Bacterial growth, damage to the gaskets or the pipe, may be promoted by use of non-approved lubricants. Use only lubricant supplied by the pipe manufacturer.

After lubrication, the pipe is ready to be joined. Good alignment of the pipe is essential for ease of assembly. Align the spigot to the bell and insert the spigot into the bell until it contacts the gasket uniformly. Do not swing or “stab” the joint; that is, do not suspend the pipe and swing it into the bell. The spigot end of the pipe is marked by the manufacturer to indicate the proper depth of insertion.

Solvent cemented joints where approved by the ENGINEER should be made in accordance with manufacturer’s recommendations or in accordance with ASTM D2855, “Standard Recommended Practice for Making Solvent Cemented Joints with Polyvinyl Chloride PVC Pipe and Fittings”.

To join field-cut pipe, it is necessary to first prepare the pipe end. A square cut is essential for proper assembly. The pipe shall be marked around its entire circumference prior to cutting to assure a square cut. Use a factory-finished beveled end as a guide for proper bevel angle, and depth of bevel plus the distance to the insertion reference mark. The end shall be beveled using a pipe beveling tool or a wood rasp which will cut the correct taper. A portable sander or abrasive disc may also be used to bevel the pipe end. Round off any sharp edges on the leading edge of the bevel with a pocket knife or a file.

US 231(G.L. Smith Street) Utility Relocations
City of Morgantown
WATER MAIN

Section 2210
TRENCHING BACKFILLING AND COMPACTING

Part 1: GENERAL

1.01 Submittals

All materials to be used for backfill, including common fill and bedding materials, shall be approved by ENGINEER prior to placing the materials in the pipe trench. All backfill and bedding materials whether obtained from the trench excavation or from an off-site source must be tested as directed by the engineer.

If required by engineer samples of the materials shall be tested at an approved testing agency for analysis. Test results and a report stating the materials meet the requirements of these specifications shall be provided by approved testing lab to the ENGINEER before any material is placed in the trench.

1.02 Profiles and Topography

Contours, topography and profiles of the ground if provided and shown on the Drawings are believed to be reasonably correct, but are not guaranteed to be absolutely so and are presented only as an approximation.

The CONTRACTOR shall accept the construction site with conditions the same as existed at the time of bidding.

Part 2: PRODUCTS

2.01 General

See Sketch No. 61-300-3 SK at the end of this section for the locations of trench backfill and bedding materials.

2.02 Fill Material

Material for backfilling shall be earth materials entirely free from vegetation, trash, lumber, frozen, soft or organic materials. No stones or rock larger than the sizes listed below will be permitted in the backfill:

Common Fill-Type A: No stones or rocks larger than 1-inch.
Common Fill-Type B: No stones or rocks larger than 4-inches.

2.02 Fill Material (cont.)

Common fill material may be obtained from the trench excavation provided it has been tested in accordance with the requirements of Section 2210.1.01 above and approved by

the ENGINEER. If approved material obtained from the trench excavation is insufficient to complete the backfill, the CONTRACTOR shall obtain the necessary approved common fill materials from an off-site source.

2.03 Bedding Material

Materials used for bedding and the haunch around the pipe shall be a course to fine sandy material with maximum stone size of 1-inch. The material shall conform to ASTM D2487 “Standard Method for Classification of Soils for Engineering Purposes” using the “Unified soil classification System,” except where a higher standard is required by rules or regulations of Federal, State, or local governmental bodies having jurisdiction over the site of the Work.

The material shall meet a Class II designation. Soil types GW, GP, SW and SP, non-cohesive, well graded and containing some fines are included in this Class. Where voids, finer grained soils or movement may allow migration of this material, a filter fabric as directed by the ENIGNEER will be used in the trench bottom and sides before the select fill bedding is placed.

Bedding material may be obtained from the trench excavation provided it has been tested in accordance with the requirements of Section 2210.1.01 above and approved by the ENGINEER. If the approved material obtained from the trench excavation is insufficient to complete the bedding, the CONTRACTOR shall obtain the necessary tested and approved bedding materials from an off-site source.

2.04 Filter Fabric

Filter fabric shall be non-woven, synthetic fiber material with sieve design to not permit the select material in the pipe bedding and haunching to migrate into the surrounding soils. The material shall have a minimum thickness of 15 mils, tensile strength of 130 lbs., elongation at break of 62% and trapezoidal tear strength of 70 lbs.

Part 3: EXECUTION

3.01 Construction Equipment

Where mains are located in or adjacent to pavements, all backfilling and materials handling equipment shall have rubber tires. Crawler equipment shall be permitted when there is no danger of damaging pavement. It is the CONTRACTOR’s responsibility, to repair, at his expense, any damages due to the use of any equipment to complete the work.

3.02 Noise, Dust, and Odor Control

The CONTRACTOR’s construction activities shall be conducted so as to eliminate all unnecessary noise, dust and odors.

3.03 Protection of Trees

Special care shall be taken to avoid damage to trees and their root system. Machine excavation shall not be used when, in the opinion of the ENGINEER, it would endanger the tree. In general, where the line of trench falls within the limits of the limb spread, headers are required across the trench to protect the tree. The operation of all equipment, particularly when employing booms, the storage of materials, and the disposition of excavation shall be conducted in a manner which will not injure trees, trunks, branches or their roots unless such trees are designated for removal.

3.04 Trench Support

Unsupported open cut excavation for mains will not be permitted where trenching may cause danger to life, unnecessary damage to street pavement, trees, structures, poles, utilities, or other private or public property. During the progress of the work, whenever and wherever it is necessary, the CONTRACTOR shall, at his expense, support the sides of the excavation by adequate and suitable sheeting, shoring, bracing, or other approved means. Such trench support materials and equipment shall be maintained and remain in place until backfilling operations have progressed to the point where the supports may be withdrawn without endangering property.

3.05 Trench Excavation and Bottom Preparation

A. General Excavation

General excavation shall consist of the satisfactory removal and disposal of all materials taken from within the limits of the Work contracted, meaning the material lying between the original ground line and the finished ground line as shown on the Drawings regardless of whether the original ground line is exposed to air or is covered by water. Excavation below existing ground line to enable any required construction or removals is included. It is distinctly understood that any reference to earth, rock, silt, debris or other materials on the Drawings or in the Specifications is solely for the OWNER’s information and shall not be taken as an indication of classified excavation or the quantity of earth, rock, silt, debris or other material encountered.

All excavations shall be made to the lines and grades indicated on the Drawings or established in the field by the ENGINEER.

US 231(G.L. Smith Street) Utility Relocations
City of Morgantown
WATER MAIN

D. Trench Width

Widths of trenches shall be held to a minimum to accommodate the pipe and appurtenances. The trench width shall be measured at the top of the pipe barrel and shall conform to the following limits:

Earth

Minimum: Outside diameter of the pipe barrel plus 8 inches, i.e., 4 inches each side.

Maximum: Normal pipe diameter plus 24 inches.

Rock

Nominal Pipe Diameter

	12 inches or less	16 inches or larger
Minimum:	Outside diameter of the pipe barrel plus 16 inches, i.e., 8 inches each side.	Outside the diameter of the pipe barrel plus 24 inches, i.e., 12 inches each side.

Maximum: Nominal pipe diameter plus 24 inches.

E. Excessive Trench Width

If, for any reason the trench width exceeds the maximum trench width defined in Paragraph D, “Trench Width,” the CONTRACTOR shall provide additional bedding and backfill material as specified in Sections 2210.2.02 and 2210.2.03 to fill the additional width of trench, at no cost to the OWNER.

F. Trench Depth

(1) General. All trenches shall provide for a minimum cover shown on the plans over the top of the pipe barrel to the top of the finished grade of the roadway unless otherwise authorized by the ENGINEER.

(2) Earth. The trench shall be excavated to the depth required, so as to provide a uniform and continuous bearing and support for the pipe barrel on solid and undisturbed ground at every point between joints, except that it will be permissible to disturb the finished trench bottom over a maximum length of 18 inches near the middle of each length of pipe by the withdrawal of pipe slings or other lifting tackle. When required, bell holes shall be provided. The finished trench bottom shall be accurately prepared by means of hand tools.

(3) Rock. Where excavation is made on rock or boulders, the trench shall be excavated 8 inches below the pipe barrel for pipe 12 inches in diameter or less, and 12 inches below the pipe barrel for 16 inch diameter pipe and larger. All loose material shall be removed from the trench bottom. After preparation of the trench bottom, a pipe bed shall be prepared using bedding material as specified in Section 2210.1.03.

(4) Unsuitable Bottom. When unsuitable material is found below subgrade, as determined by the ENGINEER, CONTRACTOR shall remove the material to a depth determined by the ENGINEER, and provide compacted bedding material as specified in Section 2210.2.03 to backfill the trench in the area where unsuitable material has been excavated.

3.06 Trench Backfilling

A. Backfill to Centerline of Pipe Barrel

All trench excavation shall be backfilled immediately after pipe is laid. Compacted bedding material as described in Section 2210.2.03 shall be used to backfill the trench from the bottom of the pipe barrel to the centerline of the pipe barrel. The material shall be placed in uniform 6 inch loose layers and each layer compacted so as to eliminate the possibility of settlement, pipe misalignment or damage of joints.

B. Backfill to 12 inches over Pipe Barrel

From the centerline of the pipe barrel to an elevation of 12 inches over the top of the pipe barrel, Common Fill-Type A, as described in Section 2210.2.02, shall be used as backfill material. Care shall be taken to avoid injuring or moving the pipe.

C. Remaining Trench Backfill

From 12 inches above the pipe barrel to the surface, Common Fill-Type B, as described in Section 2210.2.02, shall be used as backfill material. No material shall be used for backfilling that contains frozen earth, rock, large stones, boulders, or other unsuitable material. The CONTRACTOR may use mechanical equipment to place the backfill. This shall be done in such a manner that the material does not free fall, but shall be placed so that it will flow onto the previously placed material. The CONTRACTOR shall consolidate the backfill in such a manner as will insure the minimum possible settlement and the least interference with traffic. No compacting of the backfill with mechanical equipment, such as wheeled vehicles, will be permitted unless sufficient cover is provided over the pipe to prevent damage to the pipe.

D. Surface Conditions

The trench surface shall be regularly attended to during the course of the Contract. The CONTRACTOR shall take prompt corrective measures to correct any settlement or wash-out. The trench surface shall be maintained in a safe condition and shall not interfere with natural drainage.

E. Deficiency of Backfill

Any material required for backfilling the trenches or for filling depressions caused by settlement or washout shall be supplied and placed by the CONTRACTOR at his expense.

3.07 Trench Maintenance

The CONTRACTOR shall be responsible for the condition of the trenches for a period of one (1) year from the date of the final acceptance of the CONTRACTOR’s work, or as required for filling depressions caused by settlement or washout shall be supplied and placed by the CONTRACTOR at his expense.

US 231(G.L. Smith Street) Utility Relocations
City of Morgantown
WATER MAIN

Section 2220
CASING INSTALLATION

Part 1: GENERAL

1.01 General Requirements

The installation of casing pipe shall conform to these Specifications and any Federal, State, of local Highway requirements or any Railroad requirements which may be more restrictive.

1.02 Submittals

Details of proposed jacking or boring pits shall be submitted to the ENGINEER showing locations and dimensions and details of sheeting and shoring required.

1.03 Related Work

Excavation, backfilling, and compaction for jacking and receiving pits and for open cut installation shall conform to the requirements set forth in Section 2210.

Installation of casing in open cut excavation shall conform to the requirements of Section 15110.

US 231(G.L. Smith Street) Utility Relocations
City of Morgantown
WATER MAIN

Part 2: PRODUCTS

2.01 Material

Casing pipe shall be bare wall steel pipe with minimum yield strength of 35,000 psi with a minimum wall thickness as listed below:

Casing Outside Diameter (inches)	Highway Crossings Casing Wall Thickness (inches)	Railroad Crossings Casing Wall Thickness (inches)
8.625	0.250	0.250
10.750	0.250	0.250
12.750	0.250	0.250
14	0.250	0.281
16	0.250	0.281
18	0.250	0.312
20	0.312	0.344
24	0.312	0.406
30	0.375	0.469
36	0.500	0.532
42	0.500	0.563
48	0.625	0.625
54	0.625	0.688
60	0.625	0.750
66	0.625	0.813
72	0.750	0.875

Smooth wall steel plates with a nominal diameter of over 54 inches shall not be permitted.

The inside diameter of the casing pipe shall be at least two (2) inches greater than the outside diameter of the carrier pipe joints or couplings for carrier pipe less than six (6) inches in diameter; and at least four (4) inches greater than the outside diameter of the carrier pipe joints or couplings for carrier pipe six (6) inches and over in diameter.

Part 3: EXECUTION

3.01 Alignment and Grade

Pipelines shall be located, where practicable, to cross roadways or tracks at approximately right angles thereto but preferably at not less than 45 degrees and shall not be placed within culverts nor under bridges where there is likelihood of restricting the area required for the purposes for which the bridges or culverts were built, or of endangering the foundations. The casing pipe shall be installed on an even grade for its entire length and shall slope to one end.

US 231(G.L. Smith Street) Utility Relocations
City of Morgantown
WATER MAIN

3.02 Welding

Steel casing sections shall be connected by welding. Welding shall conform to AWWA C206.

3.03 Protection at Ends of Casing

Casings shall have both ends blocked up in such a way as to prevent the entrance of foreign material, but allowing leakage to pass in the event of a carrier break.

3.04 Depth of Installation

Casing pipe depth shall be in accordance with highway or railroad requirements.

3.05 Casing Insulators

The carrier pipe and casing shall be separated by an insulator. The insulator shall be timber skids as shown on Sketch 61-300-4 or steel casing insulators models C18/C12

3.05 Casing Insulators (cont.)

with compatible runners (based on pipe diameter) manufactured by Pipeline Seal and Insulator, Inc. (PSI) of Houston, Texas. The insulator spacing shall be installed to support the weight of the pipe and contents. As a minimum, an insulator shall be placed a maximum of one foot from each side of a joint.

3.06 Installation

Refer to Sketch No. 61-300-4 at the end of this section for a typical casing installation detail.

Casing pipes shall be installed by one of the following methods:

A. Jacking

This method shall be in accordance with the current American Railway Engineering Association Specifications, Chapter 1, Part 4, “Jacking Culvert Pipe Through Fills,” except that steel pipe shall be used with welded joints. This operation shall be conducted without hand mining ahead of the pipe and without the use of any type of boring, auguring, or drilling equipment.

Bracing and backstops shall be so designed and jacks of sufficient rating used so that the jacking can progress without stoppage (except for adding lengths of pipe).

B. Drilling

This method employs the use of an oil field type rock roller bit or a plate bit made up of individual roller a cutter unit which is solidly welded to the pipe casing being installed and which is turned as it is advanced. The pipe is turned for its entire length from the drilling machine to the head to give the bit the necessary cutting action against the ground being drilled. High density slurry (oil field drilling mud) is injected through a supply line to the head which acts as a cutter lubricant. This slurry is injected at the rear of the cutter units to prevent any jetting action ahead of the pipe. The drilling machine runs on a set of steel rails and is advanced (thus advancing the pipe) by a set of hydraulic jacks. The method is the same whether earth or rock is being drilled. Methods of a similar nature shall be submitted to the ENGINEER for approval.

C. Boring

This method consists of pushing the pipe into the fill with a boring auger rotating within the pipe to remove the soil. When augers or similar devices are used for pipe emplacement, the front of the pipe shall be provided with mechanical arrangements or devices that will positively prevent the auger and cutting head from leading the pipe so

C. Boring (cont.)

that there will be no unsupported excavation ahead of the pipe. The auger and cutting head arrangement shall be removable from within the pipe in the event an obstruction is encountered. The overcut by the cutting head shall not exceed the outside diameter of the pipe by more than one-half inch. The face of the cutting head shall be arranged to provide reasonable obstruction to the free flow of soft or poor material.

If an obstruction is encountered during installation to stop the forward action of the pipe, and it becomes evident that it is impossible to advance the pipe, operations will cease and the pipe shall be abandoned in place and filled completely with grout.

Bored or jacked installations shall have a bore hole essentially the same as the outside diameter of the pipe. If voids should develop or if the bored hole diameter is greater than the outside diameter of the pipe by more than 1 inch, grouting shall be employed to fill such voids.

Section 15,000

PIPING - GENERAL PROVISIONS

Part 1: GENERAL

1.01 Drawings

Dimensions shown on Contract Drawings are approximate only. CONTRACTOR shall verify all piping geometry in the field and shall be responsible for insuring proper

alignment and for reject all defective material shipped to the job site or stored on the site. Failure of the ENGINEER to detect damaged material shall not relieve the CONTRACTOR from his total responsibility for the completed work if it leaks or breaks after installation. Lay all defective material aside for final inspection by the ENGINEER to determine if corrective repairs may be made, or if the material is to be rejected. The ENGINEER shall determine the extent of the repairs.

CONTRACTOR to classify defective pipe prior to ENGINEER's inspection as follows:

1. Damage to interior and / or exterior paint seal coats.
2. Damage to interior cement - mortar lining.
3. Insufficient cement - mortar lining thickness.
4. Poor quality interior paint seal coat.
5. Pipe out of round.
6. Damaged pipe barrel area to a point where pipe class thickness is reduced.
7. Denting or gouges in plain end of pipe.

The CONTRACTOR shall be responsible for all material, equipment, fixtures and devices furnished and such materials, equipment, fixtures and devices shall comply with the requirements and standards of all Federal, State, and local laws, ordinances, codes, rules and regulations governing safety and health.

The CONTRACTOR shall be solely responsible for the safe storage of all material furnished to or by him until it has been incorporated in the completed project and accepted by the ENGINEER.

Pipe, fittings, valves, hydrants and accessories shall be loaded and unloaded by lifting with hoists or skidding so as to avoid shock or damage. Under no circumstances shall such materials be dropped. Pipe handled on skid ways shall not be skidded or rolled against other pipe. Handling of this material is to be in accordance with AWWA C600-87.

Keep fittings and valves drained and stored before installation in a manner protecting them from damage due to freezing of trapped water in accordance with Section 01600.

Part 3: EXECUTION

3.01 Installation - General Requirements

All pipe shall be laid and maintained to the required lines and depths. Fittings, valves and hydrants shall be at the required locations with joints centered, spigots home and all valve and hydrant stems plumb and otherwise in strict accordance with the Specifications.

All buried steel lugs, rods, brackets and flanged joint bolts and nuts shall be given one (1) coat of Koppers #50 coal tar coating prior to backfilling and polyethylene encased if the specifications require polyethylene encasement of pipe.

US 231(G.L. Smith Street) Utility Relocations
City of Morgantown
WATER MAIN

No deviation shall be made from the required alignment, depth or grade except with the written consent of the ENGINEER.

All pipe shall be laid to the depth specified. The depth shall be measured from the final surface grade to the top of the pipe barrel. The minimum pipe cover shall be as shown on the Drawings or as specified in the Specifications Special Conditions.

Do not lay pipe in a wet trench, on subgrade containing frost, and when trench conditions are unsuitable for such work. If all efforts fail to obtain a stable dry trench bottom and the ENGINEER determines that the trench bottom is unsuitable for trench foundation, he will order in writing the kind of stabilization to be constructed.

Thoroughly clean the pipes and fittings before they are installed and this material shall be kept clean until the acceptance of the completed work. Lay pipe with the bell ends facing in the direction of laying, unless otherwise shown on the Drawings, or directed by the ENGINEER. Exercise care to insure that each length abuts against the next in such a manner that no shoulder or unevenness of any kind occurs in the pipe line.

No wedging or blocking is permitted in laying pipe unless by written order of ENGINEER.

Before joints are made, bed each section of pipe the full length of the barrel with recesses excavated so pipe invert forms continuous grade with invert of pipe previously laid. Do not bring succeeding pipe into position until the preceding length is embedded and securely in place.

Dig bell holes sufficiently large to permit proper joint making and to insure pipe is firmly bedded full length of its barrel.

Walking or working on completed pipeline, except as necessary in tamping and backfilling, is not permitted until trench is backfilled one-foot deep over top of pipes.

Take up and relay pipe that is out of alignment or grade, or pipe having disturbed joints after laying.

Take up and replace with new, such in-place pipe sections found to be defective. Replacement work at CONTRACTOR’s expense.

Take necessary precautions to prevent the floating of the pipeline by the accumulation of water on the trench, or the collapse of the pipeline from any cause. Should floating or collapse occur, restoration will be at the CONTRACTOR’s expense.

Bedding materials and concrete work for the pipe bedding and thrust restraint shall be as specified previously in Division 2 and 3 respectively.

Take every precaution to prevent foreign material from entering the pipe while it is being placed. During laying operations, do not place debris, tools, clothing, or other materials in the pipe.

Close all openings in the pipeline with watertight plugs when pipe laying is stopped at the close of the day's work or for other reasons, such as rest breaks or meal periods.

Place enough backfill over the center sections of the pipe to prevent floating.

Carry out the cutting of pipe only with equipment specifically designed for that purpose such as an abrasive wheel, rotary wheel cutter, a guillotine pipe saw or a milling wheel saw. The use of chisels or hand saws will not be permitted. Cut ends and rough edges should be beveled slightly.

In distributing material at the site of the Work, each piece shall be unloaded opposite or near the place where it is to be laid in the trench.

If the pipe is to be strung out, it shall be done so in a straight line or in a line conforming to the curvature of the street. Each length of pipe shall be adequately blocked to prevent movement. Stockpiled pipe shall be adequately blocked to prevent movement. No pipe,

3.01 Installation - General Requirements (cont.)

material, or any other object shall be placed on private property, obstruct walkways or driveways, or in any manner interfere with the normal flow of traffic.

In the case of pre-stressed concrete, gray and ductile iron pipe, special care shall be exercised, during handling temporary storage or construction to avoid damage to the bells, spigots or flanged ends. If damaged pipe cannot be repaired to the ENGINEER's satisfaction, it shall be replaced at the CONTRACTOR's expense.

The CONTRACTOR shall remove all existing pipe, fittings, valves, pipe supports and blocking and all other items necessary to provide space for making connections to existing pipe and installing all piping which is to be done under this Contract.

The CONTRACTOR shall be responsible for maintaining the minimum required distance between the water line and other utility lines in strict accordance with all Federal, State and local requirements and all right-of-way limitations.

Maximum allowable deflection at the joints for push-on joint pipe shall be as follows providing manufacturer's recommendations are not more stringent:

Size of Pipe	Deflection Angle	Maximum Deflection (18-ft. length)	(20-ft. length)
thru 12”	2-1/2°	9-1/2”	10-1/2”
14” - 36”	1-1/2°	5-1/2”	6”
42” - 48”	1°	3-1/4”	4”

In case the curve is too sharp for the allowable deflection, short lengths of pipe may be used upon approval of the ENGINEER and at no additional cost to the OWNER.

When shown on the Drawings or required by the Specification Special Conditions the CONTRACTOR shall furnish air relief valve assemblies in accordance with Sketch 61-300-8 which is attached to this Section.

Particular care shall be exercised to that no high points are established where air can accumulate. In the event that unforeseen field conditions necessitate a change in the pipe profile and, in the opinion of the ENGINEER, the resulting change requires the installation of an air release valve and manhole, install the same as extra Work to the Contract. If the CONTRACTOR requests a change in the pipe profile solely for ease of construction, and the requested change requires the installation of an air release valve and manhole as determined by the ENGINEER, then the cost of furnishing and installing the air release valve and manhole will be at the expense of the CONTRACTOR. See Sketch

3.01 Installation - General Requirements

61-300-8 and 61-300-8A included at the end of this Section for details of an air release valve assembly.

3.02 Construction Methods to Avoid Contamination

Heavy particulates generally contain bacteria and prevent even very high chlorine concentrations from contacting and killing such organisms. It is essential that the procedures of this section be observed to assure that a water main and its appurtenances are thoroughly clean for the final disinfection by chlorination.

Precautions shall be taken to protect the interiors of pipes, fittings, and valves against contamination. Pipe delivered for construction shall be strung so as to minimize entrance of foreign material. All openings in the pipeline shall be closed with watertight plugs when pipe laying is stopped at the close of the day’s work or for other reasons, such as rest breaks or meal periods. Rodent-proof plugs may be used where it is determined that watertight plugs are not practical and where thorough cleaning will be performed.

Delay in placement of delivered pipe invites contamination. The more closely the rate of delivery is correlated to the rate of pipe laying, the less likelihood of contamination.

Joints of all pipe in the trench shall be completed before work is stopped. If water accumulates in the trench, the plugs shall remain in place until the trench is dry.

Yarning of packing material shall consist of molded or tubular rings, or rope of treated paper of other approved materials. Materials such as jute, asbestos or hemp shall not be used. Packing material shall be handled in a manner that avoids contamination.

No contaminated material or any material capable of supporting prolific growth of microorganisms shall be used for sealing joints. Sealing material or gaskets shall be handled in a manner that avoids contamination. The lubricant used in the installation of sealing gaskets shall be suitable for use in potable water. It shall be delivered to the job in closed containers and shall be kept clean.

If dirt enters the pipe, and in the opinion of the ENGINEER the dirt will not be removed by the flushing operation, the interior of the pipe shall be cleaned by mechanical means and then shall be swabbed with a 1% hypochlorite disinfecting solution. Cleaning with the use of a pig, swab or “go-devil” should be undertaken only when the ENGINEER has specified such and has determined that such operation will not force mud or debris into pipe joint spaces.

If it is not possible to keep the pipe and fittings dry during installation, every effort shall be made to assure that any of the water that may enter the pipe joint spaces contains an available chlorine concentration of approximately 25 mg/L. This may be accomplished by

3.02 Construction Methods to Avoid Contamination

adding calcium hypochlorite granules or tablets to each length of pipe before it is lowered into a wet trench, or by treating the trench water with hypochlorite tablets.

If the main is flooded during construction, it shall be cleared of the flood water by draining and flushing with potable water until the main is clean. The section exposed to the flood water shall then be filled with chlorinated potable water that, at the end of a 24 hour holding period, will have a free chlorine residual of not less than 25 mg/L. The chlorinated water may then be drained or flushed from the main. After construction is completed, the main shall be disinfected using the continuous feed or slug method.

3.03 Valve Installation

Prior to installation, inspect valves for direction of opening, freedom of operation, tightness of pressure containing bolting, cleanliness of valve ports and especially seating surfaces, handling damage and cracks. Correct defective valves or hold for inspection by the ENGINEER.

Set and join to the pipe in the manner specified in Section 3.01. Provide valves 12-inch and larger with special support, such as crushed stone or concrete pads, so that the pipe will not be required to support the weight of the valve. Set truly vertical.

Provide all valves with a valve box. Set the top of the valve box neatly to the grade of the surface of the existing ground, unless directed otherwise by the ENGINEER. Do not transfer shock or stress to the valve and center and plumb the box over the wrench nut of the valve. Do not use valves to bring misaligned pipe in such manner as to prevent stress on the valve. See Sketch 61-300-6 at the end of this Section for a typical valve box installation detail.

When authorized by the OWNER provide valve marking posts at locations designated by the ENGINEER all in accordance with Sketch 61-300-14 included at the end of this section. Payment will be made per post in accordance with supplemental unit price schedule.

3.04 Thrust Restraint

Provide all plugs, caps, tees, and bends (both horizontal and vertical) with concrete reaction backings and/or restrained joint pipe as detailed on the Drawings, or specified in the Specification Special Conditions.

Place concrete reaction backing between undisturbed solid ground and the fitting to be anchored. Concrete reaction backing to be installed in accordance with Specification Section 3300. The backing unless otherwise shown or directed, shall be located as to

3.04 Thrust Restraint (cont.)

contain the resultant thrust force and so that the pipe and fitting joints will be accessible for repair.

Temporary thrust restraint at temporary caps or plugs shall be the responsibility of the CONTRACTOR. Submit details of temporary restraint to the ENGINEER for approval.

At connections with existing water mains where there is a limit on the time the water main may be removed from service, use metal harnesses of anchor clamps, tie rods and straps; mechanical joints utilizing set-screw retainer glands; or restrained push-on joints. Metal harnessing may not be used by the CONTRACTOR in lieu of concrete backing without the approval of the ENGINEER. Submit details of the proposed installation to the ENGINEER for approval. For pipe up to 12 inches in size, use a minimum of two 3/4-inch tie rods. For pipe 16-inch in size, four 3/4 inch tie rods are required and for 20-24-inches pipe, six 3/4-inch tie rods are required. For larger pipe sizes, consult the ENGINEER. Install retainer glands in accordance with the instructions of the particular manufacturer furnishing the glands.

Material for metal harnessing and tie-rods shall be ASTM A-36 or A-307 as a minimum requirement.

Protection of Metal Harnessing: Protect tie rods, clamps and other metal components against corrosion by hand application of a bituminous coating or by encasement of the entire assembly with 8-mil thick, loose polyethylene film in accordance with AWWA C105. Grease all tie rods prior to installing polyethylene.

Section 15020

DISINFECTING PIPELINES

Part 1: GENERAL

1.01 Scope of Work

The CONTRACTOR shall flush and disinfect all pipelines installed under this Contract.

1.02 Work by Owner

The OWNER will furnish water for testing, flushing and disinfecting pipelines. The OWNER will also perform bacteriological testing.

1.03 Protection

Due to the toxicity of chlorine fumes, men performing work under this Section shall be equipped with all safety equipment and shall be attended by other personnel who are in the vicinity where work is to be performed.

The forward of AWWA Standards B300-87 and B301-87 contain information and additional reference material regarding the safe handling of hypochlorite and liquid chlorine. The CONTRACTOR shall familiarize himself with this information prior to performing any disinfection work.

1.04 Related Work

Pipeline installation precautions to avoid contamination are described in Specification Section 15000.

Part 2: PRODUCTS

2.01 Materials and Equipment

CONTRACTOR shall furnish chlorine liquid (with the approval of the ENGINEER) and injection equipment and/or calcium hypochlorite (HTH) as needed to complete the disinfection of all pipelines.

Liquid chlorine contains 100% available chlorine and is packaged in steel containers usually of 100lb, 150lb, or 1 ton net chlorine weight. Liquid chlorine is to be furnished in accordance with AWWA B301-87.

Calcium hypochlorite is available in granular form or in approximately 5-g tablets, and contains approximately 65% available chlorine by weight. The material should be stored in a cool, dry, and dark environment to minimize its deterioration.

Calcium hypochlorite is to be furnished in accordance with AWWA B300-87.

Part 3: EXECUTION

3.01 Preparation

With the exception of the tablet method, all pipelines shall be pressure and leak tested, flushed, and cleaned of debris and dirt prior to application of the disinfectant. The tablet method requires the pipeline to be kept completely clean and dry during construction.

3.02 Application of Disinfectant

Methods to be used for disinfection are those detailed in ANSI/AWWA C-651-86 (water mains).

3.03 Water Mains

US 231(G.L. Smith Street) Utility Relocations
City of Morgantown
WATER MAIN

Three (3) methods of chlorination are described below. Information in the forward of AWWA Standard C651 will be helpful in determining the best method to be used.

A Tablet Method

The tablet method consists of placing calcium hypochlorite granules and tablets in the water main as it is being installed and then filling the main with potable water when installation is completed.

NOTE: This method may be used only if the pipes and appurtenances are kept clean and dry during construction.

Placing of clacium hypochlorite granules. During construction, calcium hypochlorite granules shall be placed at the upstream end of the first section of pipe, at the upstream end of each branch main, and at 500 foot intervals. The quantity of granules shall be as shown in Table 1.

WARNING: This procedure must not be used on solvent welded plastic or on screwed joint steel pipe because of the danger of fire or explosion from the reaction of the joint compounds with the calcium hypochlorite.

Placing of calcium hypochlorite tablets. During construction, 5-g calcium hypochlorite tablets shall be placed in each section of pipe and also one such tablet shall be placed in each hydrant, hydrant branch and other appurtenances. The number of 5-g tablets required for each pipe section shall be 0.0012d [squared] L rounded to the next highest integer, where D is the inside pipe diameter in inches and L is the length of the pipe section in feet. Table 2 shows the number of tablets required for commonly used sizes of pipe. They shall be attached by a food grade adhesive such as *Permatex Form-A Gasket No.2 and * Permatex clear RTV Silicone adhesive or equal. There shall be no adhesive on the tablet except on the broad side attached to the surface of the pipe. Attach all the tablets inside and at the top of the main, with approximately equal numbers of tablets at each end of a given pipe length. If the tablets are attached before the pipe section is placed in the trench, their position shall be marked on the section so it can be readily determined that the pipe is installed with the tablets at the top.

Filling and contact. When installation has been completed, the main shall be filled with water at a rate such that water within the main will flow at a velocity no greater than 1fps. Precautions shall be taken to assure that air pockets are eliminated. This water shall remain in the pipe for at least 24 hours. If the water temperature is less than 5°C (41°F), the water shall remain in the pipe for at least 48 hours. Valves shall be positioned so that the strong chlorine solution in the main being treated will not flow into water mains in active service.

US 231(G.L. Smith Street) Utility Relocations
City of Morgantown
WATER MAIN

TABLE 1

Ounces of Calcium Hypochlorite Granules to be placed
at beginning of Main and at each 500 Foot Intervals

Pipe Diameter	Calcium Hypochlorite Granules
4	0.5
6	1.0
8	2.0
12	4.0
16 and larger	8.0

TABLE 2
Number of 5-g Hypochlorite Tablets
Required for Dose of 25 mg/L**

Pipe Diameter Inches	Length of Pipe Section, feet 13 or less	18	20	30	40
4	1	1	1	1	1
6	1	1	1	2	2
8	1	2	2	3	4
10	2	3	3	4	5
12	3	4	4	6	7
16	4	6	7	10	13

* A product of the Permatex Co., Brooklyn, New York and Kansas City, Kansas.

** Based on 3.25 available chlorine per tablet, any portion of tablet rounded to next higher number.

B. Continuous Feed Method

The continuous feed method consists of placing calcium hypochlorite granules in the main during construction (optional), completely filling the main to remove all air pockets, flushing the completed main to remove particulates, and filling the main with potable water chlorinated so that after a 24-hour holding period in the main there will be a free chlorine residual of not less than 10 mg/L.

Placing calcium hypo chlorinate granules. The purpose of this procedure is to provide a strong chlorine concentration in the first flow of flushing water that flows down the main.

This procedure is recommended particularly where the type of pipe is such that this first flow of water will flow into annular spaces at pipe joints.

Preliminary flushing. Prior to being chlorinated, the main shall be filled to eliminate air pockets and shall be flushed to remove particulates. The flushing velocity in the main shall be not less than 2.5 fps unless the ENGINEER determines that conditions do not permit the required flow to be discharged to waste. Table 3 shows the rates of flow required to produce a velocity of 2.5 fps in pipes of various sizes.

NOTE: Flushing is no substitute for preventive measures during construction. Certain contaminants such as caked deposits resist flushing at any feasible velocity.

TABLE 3

Required Flow Openings to Flush Pipelines
(40 psi Residual Pressure in Water Main)

Pipe Diameter in Inches	Flow Required to Produce 2.5 fps Velocity in Main gpm	Size of Tap on Main* in inches	Hydrant Outlets Number	Size
4	100	15/16	1	2-1/2
6	220	1-3/8	1	2-1/2
8	390	1-7/8	1	2-1/2
10	610	2-5/16	1	2-1/2
12	880	2-13/16	1	2-1/2
16	1565	3-5/8	1	2-1/2

* Size of tap on main, with no significant length of discharge piping.

In mains of 24-inches or larger diameter, an acceptable alternative to flushing is to broom-sweep the main, carefully removing all sweepings prior to chlorinating the main.

Chlorinating the Main.

(1) Water from the existing distribution system or other approved source of supply shall be made to flow at a constant, measured rate into the newly laid water main. In the absence of a meter, the rate may be approximated by means such as placing a pitot gauge in the discharge of measuring the time to fill a container of known volume.

(2) At a point not more than 10 feet downstream from the beginning of the new main, water entering the new main shall receive a dose of chlorine fed at a constant rate such that the water will have not less than 25 mg/L free chlorine. To assure that this concentration is provided, measure the chlorine concentration at regular intervals in

accordance with the procedures described in the current edition of the AWWA Standards Methods.

Table 4 gives the amount of chlorine required for each 100 feet of pipe of various diameters. Solutions of 1 percent chlorine may be prepared with calcium hypochlorite in 8 gallons of water.

TABLE 4

Chlorine Required to Produce 25 mg/L Concentration
in 100 feet of Pipe by Diameter

Pipe Diameter in Inches	100 Percent Chlorine lb.	1 Percent Chlorine Solutions gal.
4	.013	.16
6	.030	.36
8	.054	.65
10	.085	1.02
12	.120	1.44
16	.217	2.60

(3) During the application of chlorine, valves shall be positioned so that the strong chlorine solution in the main being treated will not flow into water mains in active service. Chlorine application shall not cease until the entire main is filled with heavily chlorinated water. The chlorinated water shall be retained in the main for at least 24 hours, during which time all valves and hydrants in the section treated shall be operated in order to disinfect the appurtenances. At the end of this 24-hour period, the treated water in all portions of the main shall have a residual of not less than 10 mg/L free chlorine.

(4) The preferred equipment for applying liquid chlorine is a solution feed vacuum-operated chlorinator to mix the chlorine gas in solution water, in combination with a booster pump for injecting the chlorine gas solution water into the main to be disinfected. It is recommended that direct feed chlorinators not be used. (A direct feed chlorinator is one which operates solely from the pressure in the chlorine cylinder.) Hypochlorite solution may be applied to the water main with a gasoline or electrically powered chemical feed pump designed for feeding chlorine solutions. Feed lines shall be of such material and strength as to withstand safely the corrosion caused by the concentrated chlorine solutions and the minimum pressures that may be created by the pumps. All connections shall be checked for tightness before the solution is applied to the main.

C. Slug Method

The slug method consists of placing calcium hypochlorite granules in the main during construction, completely filling the main to eliminate all air pockets, flushing the main to remove particulates, and slowly flowing through the main a slug of water dosed with chlorine to a concentration of 100 mg/L in order that all parts of the main and its appurtenances will be exposed to the highly chlorinated water for a period of not less than 3 hours.

The flushing is to be performed in accordance with the flushing procedure described in Section B. Continuous Feed Method

Chlorinating the Main. At a point not more than 10 feet downstream from the beginning of the new main, water entering the new main shall receive a dose of chlorine fed at a constant rate such that the water will have not less than 100 mg/L free chlorine. To assure that this concentration is provided, the chlorine concentration should be measured at regular intervals. The chlorine shall be applied continuously and for a sufficient period to develop a solid column of "slug" of chlorinated water that will, as it moves through the main, expose all interior surfaces to a concentration of approximately 100 mg/L for at least 3 hours.

The free chlorine residual shall be measured in the slug as it moves through the main. If at any time it drops below 50 mg/L the flow shall be stopped, chlorination equipment shall be relocated at the head of the slug, and as flow is resumed, chlorine shall be applied to restore the free chlorine in the slug to not less than 100 mg/L.

As the chlorinated water flows past fittings and valves, related valves and hydrants shall be operated so as to disinfect appurtenances and pipe branches.

3.04 Disposal of Heavily Chlorinated Water

After the applicable retention period, heavily chlorinated water should not remain in contact with pipe for more than 48 hours. In order to prevent damage to the pipe lining or corrosion damage to the pipe itself, the heavily chlorinated water shall be flushed from the main until chlorine measurements show that the concentration in the water leaving the main is no higher than that generally prevailing in the system or is acceptable for domestic use. CONTRACTOR shall contact the local sewer department to arrange for disposal of the heavily chlorinated water to the sanitary sewer.

The chlorine residual of water being disposed shall be neutralized by treating with one of the chemicals listed in Table 5. If a sanitary sewer system is unavailable for disposal of the chlorinated water an alternative disposal site must be selected.

US 231(G.L. Smith Street) Utility Relocations
City of Morgantown
WATER MAIN

The proposed alternative disposal site to which the chlorinated water is to be discharged shall be inspected and approved by the ENGINEER. A reducing agent shall be applied to the chlorinated water to be wasted to completely neutralize the chlorine residual remaining in the water. (See Table 5 for neutralizing chemicals). Where necessary, federal, state, and local regulatory agencies should be contacted to determine special provisions for the disposal of heavily chlorinated water.

TABLE 5

Pounds of chemicals required to neutralize various residual
Chlorine concentrations in 100,000 gallons of water.

Residual Chlorine Concentration mg/L	Sulfur Dioxide (SO_2)	Sodium Bisulfate ($NaHSO_3$)	Sodium Sulfite ($NaSO_3$)	Sodium Thiosulfate ($Na_2S_2O_3.5H_2O$)
1	0.8	1.2	1.4	1.2
2	1.7	2.5	2.9	2.4
10	8.3	12.5	14.6	12.0
50	41.7	62.6	73.0	60.0

3.05 Bacteriological Testing

After final flushing and before the water main is placed in service, a sample or samples will be collected from the end of the line by the CONTRACTOR and be tested by the OWNER for bacteriological quality in accordance with Standard Methods of the Examination of Water and Wastewater. At least one sample will be collected from the new main and one from each branch. In the case of mains greater than 2500 feet, samples will be collected along the length of the line when possible as well as at its end.

Bacteriological tests must show complete absence of coliforms. If tests show presence of coliform CONTRACTOR will be required to perform additional flushing and disinfection of the pipeline until such time acceptable tests are obtained, all at no cost to the OWNER. The CONTRACTOR will not be charged for the additional testing performed by the OWNER.

US 231(G.L. Smith Street) Utility Relocations
City of Morgantown
WATER MAIN

Section 15025

CLEANING PIPELINES

Part 1: GENERAL

1.01 Scope of Work

When required by the Specification Special Conditions or when it is determined that normal flushing will not sufficiently remove dirt and debris introduced during construction the CONTRACTOR shall clean the required pipelines installed under these Contract Documents. The cleaning shall use foam pigs, swabs or "go-devils" as described herein.

1.02 General

After the installation of water mains normal flushing often proves inadequate to remove all the entrapped air, loose debris and other objects that may have been left in the main during installation. Therefore, after the installation of water mains it may be necessary to use polyurethane foam pigs and/or polyurethane hard foam swabs to remove all foreign matter from the pipeline (i.e. "pig" the pipeline).

Cleaning per the requirements of this section shall be performed prior to testing and disinfection of the main.

1.03 Related Work

See Specification Section 15000.3.02-Construction Methods to Avoid Contamination.
See Specification Section 15020.3.01-Preparation (prior to disinfecting pipelines).

1.04 Protection During Flushing and Cleaning

The CONTRACTOR shall assure that an adequate amount of flushing water at sufficiently high pressures exists and that disposal of the water can be done safely. Do not flush a large main supplied by a single smaller one as the volume available is usually inadequate for flushing.

Prior to flushing, or cleaning, the CONTRACTOR shall notify OWNER, ENGINEER and the following:

a. Fire Department
b. Other utilities, such as gas, electric and telephone companies, who may have underground facilities in the area.
c. Customers who may be inconvenienced by reduced pressure or dirty water.

Isolate the section to be flushed from the system. Operate all valves slowly to prevent water hammer.

Open the fire hydrant or blow-off valve slowly until the desired flow rate is obtained. When flushing from a dry barrel fire hydrant, use the gate valve upstream of the hydrant for throttling purposes. Open the hydrant valve fully to prevent water from escaping into the ground through the fire hydrant barrel drain.

Minimize worker injury risks by following adequate safety precautions. A safety program should include the education and training of workers in accident prevention, emergency response, and first aid techniques. Prepare specific safety rules for your equipment operators, excavation crews and main flushing and cleaning crews.

Many of the valves to be operated during flushing operations may be in or close to traffic in the street. When operating these valves warn or detour nearby traffic with the use of signs or flags. Place vehicles with warning lights to protect workers. One member should watch for traffic while the other operates the valve. Wear brightly colored safety vests at all times.

An energy dissipater will avoid damage to property and the flooding of streets. Attach an energy dissipater directly to a fire hydrant, blow-off assembly, fire hose of vehicle. An energy dissipater connected to a fire hose, while providing the ability to control the direction of flow, requires means of securing its position. Do not allow crew members to hold energy dissipaters in place. Dissipaters will move violently if not held securely. Use the flushing crew vehicle to secure the position of an energy dissipater.

The heavy flow of water may create traffic problems. If this is unavoidable, place traffic signs well ahead of the flushing site. Keep children away from the flow of flushing water.

The safety considerations just discussed also apply to main cleaning. If excavation is required during main cleaning operation, crews will most likely be working in the street as will crews operating valves during cleaning operations. Ensure that traffic is diverted safely around the immediate working areas by using traffic signs and a flag person. Wear brightly colored safety vests and hard hats near excavation areas at all times.

Part 2: PROCUCTS

2.01 Materials and Equipment

CONTRACTOR shall furnish the foam cleaning plugs, labor and equipment, as needed to pig all pipelines, and shall furnish all materials required for the expulsion of air and other debris from pipelines.

As the cleaning described in this section pertains to new water mains, the use of pipe cleaning plugs which utilize Bristles, wire brushes, carbide abrasives, steel studs or any other Type abrasive is not permitted unless specifically approved by the ENGINEER.

The CONTRACTOR is to consult a manufacturer of pipe cleaning plugs, such as Knapp Polly Pig (Houston, Texas), to determine the type and size of cleaning plug best suited for the application. Two types of plugs shall be considered and are described as follows:

A. Swabs

Swabs used for cleaning mains shall be made of polyurethane foam. This foam has a density of 1 to 2 lb./cu. ft. Swabs shall be purchased from commercial manufacturers of swabs for pipes. Both soft and hard grade foam swabs are available. New mains are typically cleaned with hard foam swabs.

B. Pigs

The other type of cleaning plug available is called a pig. Pigs, if used, shall be commercially manufactured for the specific purpose of cleaning pipes. They shall be made of polyurethane foam weighing 2 to 15 lb./cu. ft. Pigs are bullet shaped and come in various grades of flexibility and roughness.

C. Sizing of Plugs

Use swabs cut into cubes and cylinders slightly larger than the size of the pipe to be cleaned. Cubes one inch larger in dimension than the nominal diameter of the pipe being cleaned have worked well for cleaning pipes up to 12-inches in diameter.

For mains greater than 12-inches in diameter, the swab diameter must be considered individually for each operation. For new mains, swabs 3-inches larger than the pipe diameter have worked well. Swabs for the larger mains are usually 1-1/2 times the diameter in length.

Use pigs typically ¼-inch to ½-inch larger in diameter than the pipe to be cleaned.

Consult suppliers for the proper size of plug to use on the specific job.

Part 3: EXECUTION

3.01 Plug Installation and Removal

In general, the CONTRACTOR shall furnish all equipment, material, and labor to satisfactorily expose cleaning wyes, or other entry or exit points. Remove cleaning wye covers, etc., as required by the ENGINEER and to insert the plugs into the mains.

If approved by the ENGINEER, stripped fire hydrants, air valves and blow-offs may serve as entry and exit points for smaller sized mains. The ENGINEER will examine these appurtenances and the connecting laterals to ensure that adequate openings exist through which a plug may be launched.

If these appurtenances are used, a special launcher to ease the insertion and launching of the plug is required. If available a pressurized water source such as a fire hydrant can be used to launch the plug. If water from the system is not available nearby, use a water truck with pump.

If hydrants are used as entry and exit points, the CONTRACTOR shall, under ENGINEER supervision, remove the internal mechanisms and plug the drains. Insert the plug and replace the cap with a special flange with a 2-1/2-inch fitting. Connect the 2-1/2-inch fitting with a pressure gauge and valve to a pressurized water source. After the last valve isolating the section to be cleaned is closed, open the hydrant supply valve. Propel the swab or pig into the main by opening the exit valve.

In mains greater than 8-inches, Wyes shall be used at the entry and exit points. Fabricate the wye section one size larger than the main to ease the insertion and extraction of the plug. The use of wyes, as with the previously mentioned appurtenances, requires an outside source of pressurized water for launching. Cap the wye with a flange with a 2 to 6 inch fitting for connecting with the pressurized water source.

Many pigs, since they are less flexible than swabs, are harder to insert into a pipe. Other methods acceptable to insert pigs include:

1. winching with a double sling,
2. winching with a rope attached to the pig,
3. compression with a banding machine prior to insertion, and
4. the use of a specially designed tapered steel pipe which is removed after use.

During swab or pig installation, leave as much water as possible in the main to be cleaned. The water suspends the material being removed from the pipe and minimizes the chance of the material forming a solid plug. Water in the pipe also keeps the swab or pig from traveling through the pipe at excessive rates. If swabs or pigs travel too fast they will remove less material. The swab or pig will also wear more rapidly in such a case.

At the exit point or blow-off, install a wye long enough to house the swab or pig. Attach temporary piping to the end cap to allow the drainage of the water.

Where expulsion of the cleaning plugs is required through a dead end main, the CONTRACTOR shall prevent backflow of purged water into the main after passage of the cleaning plug. This can be accomplished by installing mechanical joint bends and pipe joints to provide a riser out of the trench. Additional excavation of the trench may serve the same purpose and is acceptable.

3.02 Pre-Cleaning Procedures

Preplan and prepare for the ENGINEER’s review, a written cleaning plan.

Suggested procedures prior to cleaning include the following:

1. Identify mains to be cleaned on a map. Mark the location of the entry, water supply and exit points, any blow-offs to be used, main gates to be closed, and the path of the swab or pig
2. Under the ENGINEER's supervision, inspect and operate all valves and hydrants to be used on the cleaning operation.
3. Check location and type of hydrants, launch and exit location, and blow-offs to be used. Make blow-off tap connections if necessary.
4. The OWNER will notify customers served by the main to be cleaned that their water will be off for a specified period on the day of the cleaning.
5. The OWNER will identify customers who may require temporary services during the main cleaning operation. The CONTRACTOR shall provide the temporary connections.
6. Determine the number and size of plugs to be used.

3.03 Cleaning Procedure

After approval by the ENGINEER of the CONTRACTOR's cleaning plan the following cleaning procedures as applicable shall be performed by the CONTRACTOR:

A. Swab Cleaning Procedures

1. Open the water supply upstream of the swab. Throttle the flow in the main at the discharge (plug exit) point so that the swab passes through the main at a speed of 2 to 4 fps. At this velocity, swabs will effectively clean pipes for distances of up to 4000 feet before disintegrating to a size smaller than the main. Use pilot gauges at the exist hydrant or blow-off to estimate the flow rate in the main.
2. Note the time of entry of the swab into the main and estimate its time or arrival at the exit point. If the swab does not reach the exit point in the estimated time plus ten minutes, then a blockage has probably occurred. Reverse the flow in the main and note the time required for the swab to reach the original entry point. From the return travel time, approximate the location of the blockage. The ENGINEER may require a swab to which a transmitter has been attached to be used to accurately locate a blockage.
3. Once the first swab has been recovered, typically, make two to three runs of four to five swabs each depending on how quickly flushing water clears. Continue operation until the water behind the swabs emerging at the exit clears up within one minute. Account for all swabs inserted into the main.

B. Pig Cleaning Procedures

1. Remove all air valves along the line. This will provide pressure relief should the pig suddenly stop and assure that no air is trapped in the main.

2. If the pig is inserted directly into the main, set it in motion by opening the upstream gate valve and a downstream fire hydrant or blow-off valve (usually the valve in the capped end at the exit point). If the pig is launched from a wye, fire hydrant, or other appurtenance, use an external pressurized water source to inject the pig into the main as described in Section 3.01.
3. Once the pig is in motion in the main, control its speed by throttling the discharge at a downstream fire hydrant or blow-off. Operate pigs typically at 1 fps. This slow speed will help prevent pressure surges when the pig passes through undersized valves, enters smaller pipes, or turns through tees or crosses. Speeds of up to 2 fps can be used on straight runs with not restrictions or sharp turns.
4. Make sufficient passes of the pig to obtain thorough cleaning. Two pigs may be used in tandem to save time and water. Sufficient cleaning is established when the water discharging after the pig becomes clear within one minute.

3.04 Post Cleaning Procedure

After successful completion of cleaning the main shall be tested, flushed and disinfected in accordance with applicable sections of these Specifications.

US 231(G.L. Smith Street) Utility Relocations
City of Morgantown
WATER MAIN

Section 15030

PRESSURE AND LEAKAGE TESTS

Part 1: GENERAL

1.01 Scope of Work

The CONTRACTOR shall test all piping, valves, and appurtenances installed under these Contract Documents. Testing shall be performed concurrent with installation. Unless otherwise approved by the ENGINEER, no more than 1000 feet of pipe shall be installed without being tested.

1.02 Submittals

The CONTRACTOR shall prepare and submit to the ENGINEER schedules and procedures for testing of all parts of the water main installed in accordance with these Contract Documents. The schedule shall be submitted seven days prior to any testing.

Part 2: PRODUCTS

2.01 Equipment

The pump, pipe connections, and all necessary apparatus for the pressure and leakage tests, except gauges and metering devices, shall be furnished by the CONTRACTOR. The OWNER will furnish gauges and metering devices for the tests, but the CONTRACTOR shall make all excavations and backfills, and furnish all necessary assistance for conducting the tests.

Part 3: EXECUTION

3.01 General

After the pipe has been laid, thrust backing cured (min. 5 days) and the trench completely or partially backfilled, the entire pipeline, or any section thereof, shall be subjected to hydrostatic pressure and leak tests in accordance with ANSI / AWWA C600-87, Section 4 – Hydrostatic Testing.

The CONTRACTOR may, at his option, completely backfill the trench or partially backfill the trench over the center portion of each pipe section to be tested. The ENGINEER may however direct the CONTRACTOR to completely backfill the trench if local traffic or safety conditions require such action.

The pipeline will be subjected to a hydrostatic pressure of no less than 100 psi above the normal operating pressure. For operating pressures that do not exceed 200 psi, the pipeline will be subjected to a hydrostatic pressure that is 1.5 times the normal operating pressure, but no more than the design rating of the pipe.

After installation of a tapping sleeve and valve but prior to making the tap into the main the tapping sleeve and valve assembly shall be tested. The required test pressure shall be determined in the same manner as for pipe but no pressure drop will be allowed during the test. Test pressure must be maintained for 15 minutes for acceptance.

3.02 Filling and Testing

Each segregated section of pipeline will be slowly filled with water insuring that all air is expelled. Extreme care must be taken to insure all air is expelled from the pipeline during the filling of pipe with water. The line shall stand full of water for twenty-four hours prior to testing to allow all air to escape. If necessary, tap the main at points of highest elevation so that sir can be expelled as the pipe is filled with water. After successful completion of filling and air expulsion, but prior to testing, the corporation stops shall be removed and the taps tightly plugged.

The specified test pressure, measured at the point of lowest elevation, will then be applied by means of a pump connected to the pipe in a manner satisfactory to the ENGINEER. If the elevation of the high point of the pipeline being tested is such that the pressure during testing will be below 85% of the required test pressure the ENGINEER will require a separate test to be performed of this section of pipeline. In lieu of a separate test the test pressure measured at the lowest elevation may be increased, within the pressure rating of the pipeline material, such that resulting pressure at the highest point exceeds 85% of the required test pressure. The test pressure will not vary by more than ± 5 psi and the test will be of at least two-hour duration.

A leakage test will be conducted concurrently with the pressure test. Leakage is defined as the quantity of the water measured as make-up water (volumetrically in a container or meter) that must be supplied into the newly laid pipeline to maintain pressure within 5 psi of the test pressure after the air in the pipeline has been expelled and the pipe filled with water.

No pipeline installation will be accepted by the ENGINEER if the leakage is greater than that shown in the following table:

US 231(G.L. Smith Street) Utility Relocations
City of Morgantown
WATER MAIN

Allowable Leakage per 1000 ft. of Pipeline*---gph

Nominal Pipe Diameter---in.

Avg. Test Pressure psi	4	6	8	12	16	20	24	30	36	42	48
100	0.30	0.45	0.60	0.90	1.20	1.50	1.80	2.25	2.70	3.15	3.60
125	0.34	0.50	0.67	1.01	1.34	1.68	2.01	2.52	3.02	3.53	4.03
150	0.37	0.55	0.74	1.10	1.47	1.84	2.21	2.76	3.31	3.86	4.41
175	0.40	0.59	0.80	1.19	1.59	1.98	2.38	2.98	3.58	4.17	4.77
200	0.43	0.64	0.85	1.28	1.70	2.12	2.55	3.19	3.82	4.46	5.09
225	0.45	0.68	0.90	1.35	1.80	2.25	2.70	3.38	4.05	4.73	5.41
250	0.47	0.71	0.95	1.42	1.90	2.37	2.85	3.56	4.27	4.99	5.70
275	0.50	0.75	1.00	1.49	1.99	2.49	2.99	3.73	4.48	5.23	5.98
300	0.52	0.78	1.04	1.56	2.08	2.60	3.12	3.90	4.68	5.46	6.24
350	0.56	0.84	1.12	1.69	2.25	2.81	3.37	4.21	5.06	5.90	6.74
400	0.60	0.90	1.20	1.80	2.40	3.00	3.60	4.50	5.41	6.31	7.21
450	0.64	0.95	1.27	1.91	2.55	3.18	3.82	4.78	5.73	6.69	7.64

*If the pipeline under test contains sections of various diameters, the allowable leakage will be the sum of the computed leakage for each size.

The table has been generated from the formula: $L=\frac{SD(P)1/2}{133,200}$

where L is the allowable leakage in gallons per hour, S equals the length of pipe in feet, D is the nominal pipe diameter in inches and P is the test pressure in PSIG.

Should any test disclose damaged or defective materials or leakage greater than that permitted, the CONTRACTOR shall at his own expense, locate and repair and/or replace defective materials. The tests shall be repeated until the leakage is within the permitted allowance and is satisfactory to the ENGINEER.

END OF SECTION

SECTION 0006
GAS MAINS

Consolidated PIPE & SUPPLY COMPANY, INC.

Specifications for 4” steel gas pipe:

13,524FT – 4-1/2” OD .237 WALL FUSION BOND EPOXY COATED A53 GRADE B / API-5LX42/52 ERW DOUBLE RANDOM LENGTHS PEB

PIPE SHALL BE “DOMESTIC ONLY”

PIPE SHALL BE FUSION BOND EPOXY COATED 12MIL MINIMUM – 14MIL AVERAGE.

APPROVED COATING FACALITY:

CONSOLIDATED PIPE & SUPPLY CO., INC
BIRMINGHAM, AL 35204

Thanks,

Mark Rivers
Consolidated Pipe & Supply Co., Inc.
768 Interstate Drive
Bowling Green, KY 42101
PH (270) 393-8311
FAX (270) 393-8451
Email: mrivers@consolidatedpipe.com

Charter Plastics
Polyethylene. Pipe. Partners.

▶PE 2406/2708 IPS *GAS PIPE* 8/08
Pressure Rated MDPE
Yellow Pipe

Designed for Natural Gas Distribution and Service lines ***ASTM D2513***

IPS PIPE SIZE	O.D. ACTUAL		IPS DR 7	IPS DR9	IPS DR 9.3	IPS DR 10	IPS DR 11	IPS DR 11.5	IPS DR 13.5
		Min. Wall	.120	.093	.090		.076		.062
½"	.840	Wt. Per 100'	11.8	9.7	9.5		8.3		7.1
		Min. Wall	.150	.117	.113		.095		.078
¾"	1.050	Wt per 100'	18.2	15.00	14.6		12.7		10.8
		Min. Wall	.188	.146	.141		.120		.097
1"	1.315	Wt per 100'	28.5	23.10	22.5		19.7		16.5
		Min. Wall	.237	.184	.178	.166	.151		.123
1-1/4"	1.660	Wt per 100'	45.3	36.60	35.5	33.4	30.9		26.0
		Min. Wall	.271	.211	.204		.173		.141
1-1/2"	1.900	Wt per 100'	59.4	48.00	46.6		40.3		33.8
		Min. Wall	.339	.264	.255	.238	.216		.176
2"	2.375	Wt per 100'	92.8	75.10	72.9	68.6	62.9		52.3
		Min. Wall	.500	.389	.376		.318	.304	.259
3"	3.50	Wt per foot	2.02	1.63	1.58		1.37	1.3	1.13
		Min. Wall	.643	.500	.484		.409	.391	.333
4"	4.50	Wt. Per foot	.3.33	2.69	2.62		2.30	2.2	1.87

Charter Plastics
Polyethylene. Pipe. Partners.

PE 2406/2708 CTS– *GAS TUBING*
Pressure Rated MDPE
Yellow Pipe

Designed for Natural Gas Distribution and Service

ASTM D 2513

CTS PIPE SIZE	OD ACTUAL		CTS	CTS
		Min Wall	.090	
½"	.625	Wt per 100'	6.4	
		Min Wall	.090	
¾"	.875	Wt per 100'	9.4	
		Min Wall	.090	.099
1"	1.125	Wt per 100'	12.6	13.7
		Min Wall	.090	
1-1/4"	1.375	Wt per 100'	15.6	

* Minimum order may be required – Please contact Charter Plastics for details

1

[1] 07 PE 24062708 IPS YELLOW GAS

Charter Plastics
Polyethylene. Pipe. Partners.

► PE 2406/2708 IPS & CTS - *GAS PIPE AND TUBING* Yellow

SPECIFICATIONS:
PE 2406/**2708** Resin formulation
1250 psi @ 73 °F Hydrostatic Design Basis listed in PPI TR4
800 psi @ 140 °F Hydrostatic Design Basis listed in PPI TR4
ASTM D 2513
ASTM D 1248
Cell Classification per ASTM D3350 = 234363E

Design Service Factor of .32 for natural gas (distribution)
Design Service Factor of .25 for Vapor Liquid Propane -Gas piping system

Temperature and Hydrostatic Design Basis (HDB)

Temperature factors must be considered in the design of a gas pipeline.

As per CFR 49 192.123:
"Plastic pipe may not be used when operating temperature of the pipe will be <20°F or < 40°F if all pipe and pipeline components whose operating temperature will be below -29°F have a temperature rating by the manufacturer consistent with that operating temperature."

Table # 1 interpolates the effect of temperature on HDB in accordance with PPI TR 3

HDB Ratings are established at 73°F and at 140°F.

Table # 1.

Temperature	HDB-Long Term Hydrostatic Strength
73 ° F	1250 psi
100 ° F	1055 psi
120 ° F	923 psi
140 ° F	800 psi

Design Criteria:

The design pressure for plastic pipe is calculated based on the following equation:

$$\text{Design Pressure} = \frac{2\,(\text{HDB at pipeline temperature}) \times \text{Design Service Factor (natural gas .32)}}{\text{SDR} - 1}$$

Table # 2
Maximum Allowable Operating Pressures for PE 2406/2708 Natural Gas systems:

SDR	Design Rating @ 73.4 °F	MAOP @ 73.4 °F	Design Rating @ 100°F	MAOP @ 100 °F	Design Rating @ 120° F	MAOP @ 120°F	Design Rating @ 140°F	MAOP @ 140°F
9	100 psi	100 psi	84 psi	84 psi	74 psi	74 psi	80 psi	80 psi
9.3	96 psi	96 psi	81 psi	81 psi	71 psi	71 psi	77 psi	77 psi
10	89 psi	89 psi	75 psi	75 psi	65 psi	65 psi	71 psi	71 psi
11	80 psi	80 psi	67 psi	67 psi	59 psi	59 psi	64 psi	64 psi
11.5	76 psi	76 psi	64 psi	64 psi	56 psi	56 psi	61 psi	61 psi
13.5	64 psi	63 psi	54 psi	54 psi	47 psi	47 psi	51 psi	51 psi

Design Pressure Rating is based on the formula listed above using a design factor of .32 for natural gas.

† If used in areas where pressures over 100 psi are allowed, Federal Regulations limit the MAOP to ≤ 125 psi on ≤ 12" pipe, unless a waiver is granted. Please see CFR 49 192.123 to review complete design criteria.

Propane (LPG) Gas Service:

Charter Plastics **PE** 2406/**2708** Gas pipe may be used for transporting liquefied petroleum gas (Vapor LP Gas).
NFPA 58 limits the maximum operating pressure to 30 PSI @ 73.4°F
For Propane gas service, a Hydrostatic Design Basis of 1000 psi @ 73° F should be used to design the system and a design service factor of .25 should be utilized.
NFPA limits the size of PE pipe to 2" Nominal Pipe size with an OD of 2.375".
Polyethylene pipe should only be used in underground distribution systems of Vapor LP Gas in applications where the sizes, pressures and temperatures will not support condensation.
Refer to PPI TR-22 "Polyethylene Piping Distribution systems for Components of Liquid Petroleum Gases", for guidelines in using polyethylene pipe to transport propane gas.

Outdoor Storage:

Prior to shipment, all Charter Gas pipe is stored indoors. Charter PE 2406/**2708** pipe is stabilized for extended unprotected outdoor storage.

Joining:

Charter Plastics Gas Pipe is based on outside diameter. Heat fusion is the preferred method for joining this pipe. Type of heat fusion include Butt, Socket and Saddle Fusion.
All persons making fusions should be certified by the gas system operator and should follow the gas systems written fusion procedures. In addition, all DOT procedures should be followed when making joints to ensure safety and the integrity of the system.
Electrofusion is also an acceptable method of joining polyethylene pipe.

Polyethylene pipe may also be joined with OD Mechanical fittings designed for pipe made to D 2513 Standards. A stiffener should be inserted when using OD Compression type fittings. The stiffener should be sized specifically for the pipe being installed and it should be long enough to equal the insertion depth of the pipe.

Never use any lubricant on the pipe. Do not expose the pipe to direct flame.

Application:

Charter Plastics **PE** 2406/**2708** Gas Pipe is designed for transporting natural gas or propane. This product is designed for direct burial. It is not designed for inside applications. Transition from polyethylene pipe to an appropriate product before entering the building or basement.

Installing:

Charter Plastics Polyethylene Gas pipe shall be installed in accordance with C.F.R.49 PART 192, Subpart G (mains) or Subpart H (service lines) and all applicable federal, state and local codes and regulations.
Charter Gas pipe is designed for direct burial. Depending on the application, casing may be required. Check your local and state guidelines.
Mains shall be installed with a minimum of 24" of cover unless local or state codes prevail.
Service lines must be installed with at least 12" on private property and a minimum of 18" of cover under streets and roads.
Buried pipe must be fully supported by proper embedment material. Refer to C.F.R. 49 Part 192, Subpart H and to PPI's "Handbook of Polyethylene Pipe" and follow as local, state or federal guidelines.

Safe Handling:

To safely handle and store polyethylene pipe, refer to PPI's "Material Handling Guide".

Testing:

Hydrostatic testing is preferred method for identifying leaks over Pneumatic testing. The safety concern being that if catastrophic failure occurs during pneumatic testing with a compressed gas, the energy of both the compressed gas as well as the pipeline stress energy are released. With Hydrostatic testing, only the stress energy of the pipeline is released. Consult the protocols set forth by the local gas companies as well as any local, state and federal codes before attempting pneumatic leak testing. Utilize all safety precautions.

References:

Code of Federal Regulations (CFR), U.S. Department of Transportation Pipeline Safety Regulations Title 49, Part 192 – "Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards."
ASME B31.8 and Addenda – " Gas Transmission and Distribution Piping Systems."
American Gas Association (AGA) – "Plastic Pipe Manual for Gas Service."
NFPA 58 Liquified Petroleum Gas Code – 2004 Edition
National Fuel Gas Code
API Specification 15LE, Third Edition, 1995 – Specification for Polyethylene Line Pipe (PE)
Plastics Pipe Institute TR22-2000, "Polyethylene Piping Distribution Systems for Components of Liquid Petroleum Gases:

ANODELESS METER RISERS

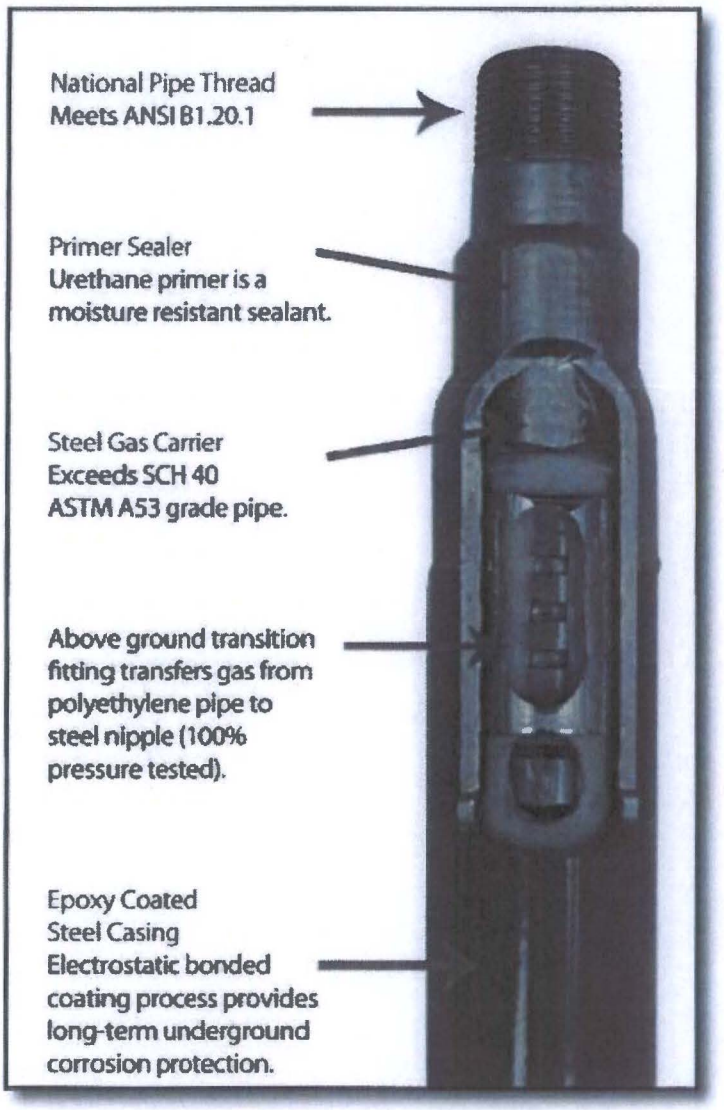
ADVANTAGES

- Adapter machined from solid bar stock; not welded.
- Casing is TIG welded to adapter which provides a stronger and higher quality weld joint.
- Casing wall thickness exceeds ASTM requirements.
- Every part is helium leak tested.
- Bending performed through roll bending as opposed to rotary bending.
- Listed with IAPMO/UPC and CSA.

ANODELESS METER RISERS

Specifications:

- Meets or exceeds all requirements for the Categorization of Mechanical Fittings within ASTM D2513-90c Category 1, and requirements from the Code of Federal Regulations, Title 49 part 192.281, 192.283 and 192.375.
- Meets or exceeds NFPA-58.
- Listed with IAPMO/UPC and CSA.
- Pipe Threads conform to ANSI B1.20.1.
- All Gas Carrying Steel parts meet or exceed ASTM A53.
- Casing Materials meet or exceed ASTM A 513.
- All polyethylene pipe and tubing components conform to ASTM D 2513.



ANODELESS METER RISERS

ANODELESS METER RISERS

SIZE (MPT X PE)	WALL	VERTICAL LENGTH	HORIZONTAL LENGTH	PART NUMBER	PART NUMBER with Con-Stab
1/2"MPT X 1/2"CTS (5/8"OD) PE	.090	30"	15"	1253-91-4604-00†‡	1253-91-4604-25†‡
3/4"MPT X 1/2"CTS (5/8"OD) PE	.090	18"	19"	1355-91-4604-00†‡	1355-91-4604-25†‡
3/4"MPT X 1/2"CTS (5/8"OD) PE	.090	30"	17"	1353-91-4604-00†‡	1353-91-4604-25†‡
3/4"MPT X 1/2" IPS PE	SDR-9.3 (.090)	30"	17"	1353-91-4612-00‡	1353-91-4612-25
3/4"MPT X 3/4" IPS PE	SDR-11 (.095)	30"	16"	1353-91-4613-00†‡	1353-91-4613-25†‡
3/4"MPT X 1"CTS (1 1/8"OD) PE	099/.101	30"	16"	1353-91-4608-00†‡	1353-91-4608-25‡
1" MPT X 1" IPS PE	SDR-11 (.119)	30"	16"	1453-91-4614-00†‡	1453-91-4614-25†‡
1 1/4"MPT X 1 1/4"IPS PE	SDR-10 (.166)	30"	22"	1553-91-4615-00†‡	1553-91-4615-25†
1 1/4" MPT X 1 1/4" IPS PE	SDR-11 (.151)	30"	22"	1553-91-4615-0A†‡	9953-99-0503-25†
1 1/2"MPT X 1 1/2"IPS PE	SDR-11 (.173)	36"	26"	1652-91-4616-00†‡	1652-91-4616-25‡
2"MPT X 2" IPS PE	SDR-11 (.216)	36"	30"	1752-91-4617-00†‡	1752-91-4617-25†

- **For sizes not listed, contact Continental Industries.**
- Recommended accessories for Anodeless Meter Risers with Con-Stab ID Seal® Couplings:
  - Continental's Bladed Chamfering Tool. See below.
- Part numbers listed are for 2406 medium density polyethylene pipe. For part numbers with 3408 high density pipe, contact Continental Industries.
- † = CSA Approved / ‡ = IAPMO/UPC Listed

END OF SECTION

SECTION 0007
WATER METERS

Insert Stiffeners

These unique insert stiffeners are designed to prevent the collapse of polyethylene, polybutylene water service tubing in Pushfit, pack joint and compression connections.

Available in 3/4” and 1” sizes, these MARS designed inserts are precision molded from Waterworks Blue thermoplastic for optimum strength and ease of installation. Both the length and O.D. have been engineered for maximum rigidity of the connection.

Other design features include a beveled flange end designed to eliminate cutting of “O” Rings and gaskets during installation and the rounded insert end prevents damage when inserted into the poly tubing.

MARS insert stiffeners, conveniently packaged in clear bags of 500, are designed to fit CTS Polyethylene SDR-9 200 PSIPE 3408, SDR-9 160 PSIPE 3406, or CTS Polybutylene SDR-9-250 PSIPB 2110. The 3/4” size fits a nominal tubing I.D. of .671”, while the 1” size fits a nominal tubing I.D. of .865”.

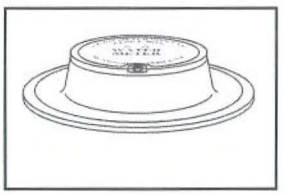
MARS INSERTS ARE OUT OF THIS WORLD

MARS Company
A Division of Floyd S. Salser Jr. & Associates
P.O. Box 772887
Ocala, Florida 34477-2887
Tel: 352-694-7195
TOLL FREE: 800-782-5268
FAX: 352-694-7397
www.marswater.com

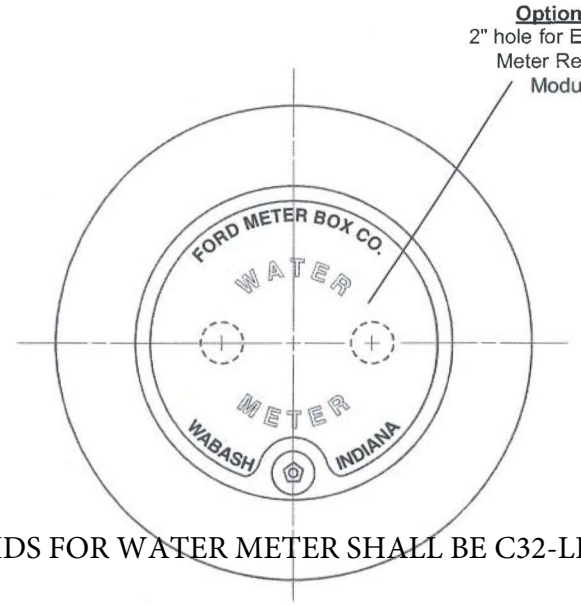
Distributed By:

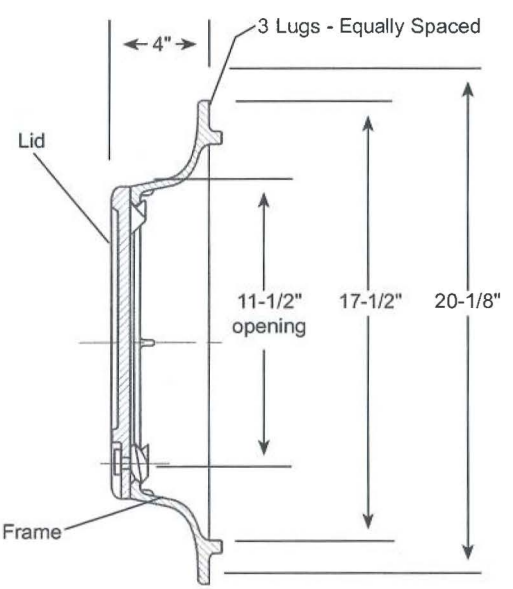
SUBMITTAL INFORMATION

Meter Box Covers - *(C32 style)*



11-1/2" OVERLAPPING LID FOR 18" TILE





LIDS FOR WATER METER SHALL BE C32-LL

*Lid Size	Tile I.D.	Approx. Wt. Lbs.	Description	Catalog Number	✓ Submitted Item(s)
11-1/2"	18"	29.0	Cover with Locking Overlapping Lid	C32	
			Cover with Lockless Overlapping Lid	C32-LL	
			Single hole for Meter Reading Module	C32-T	
			Two holes for Meter Reading Modules	C32-TT	

* Lid size indicates approximate pit access opening; actual lid diameter is approximately 1" larger.

FEATURES

- Available with precast holes for electronic meter reading modules
  Add to catalog number: "-T" for single hole, "-TT" for double hole
- Standard pentagon bolt furnished with locking lids
  Larger size is available. Add "-LB" to catalog number. For non-locking lid, add "-LL"
- Frame and lid are cast iron per ASTM A48-92, Class 25
- Finish is black E-coating

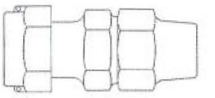
The Ford Meter Box Company considers the information in this submittal form to be correct at the time of publication. Item and option availability, including specifications, are subject to change without notice. Please verify that your product information is current.

The Ford Meter Box Company, Inc.
P.O. Box 443, Wabash, Indiana U.S.A. 46992-0443
Phone: 260-563-3171 / Fax: 800-826-3487
Overseas Fax: 260-563-0167
http://www.fordmeterbox.com
10/30/03

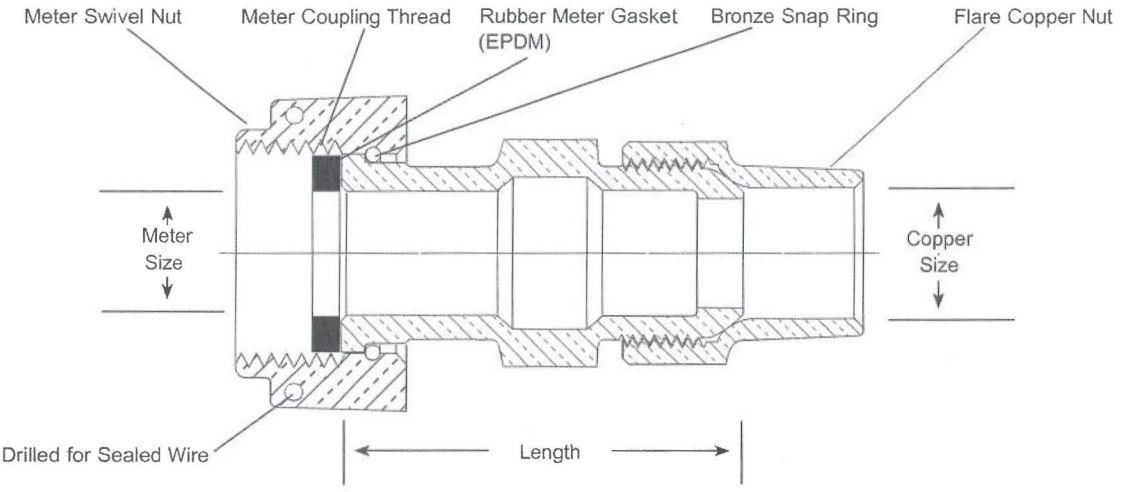
Submitted By:

SUBMITTAL INFORMATION

Straight Meter Coupling - *(C32-xx style)*



METER SWIVEL NUT BY FLARE COPPER



Meter Size	Flare Copper Size	Length	Approx. Wt. Lbs	Part Number	✓ Submitted Item(s)
5/8"	3/4"	2-3/16"	.8	C32-13	
5/8"x3/4" and 3/4"	3/4"	2-3/16"	1.0	C32-23	
1"	1"	2-1/2"	1.5	C32-44	

CLASSIFIED UL WATER QUALITY

FEATURES

- All brass conforms to AWWA Standard C800 (ASTM B-62 and ASTM B-584, UNS NO C83600 - 85-5-5-5)
- Conforms to AWWA C700 for Meter Threads
- Body design provides wrench flats to facilitate installation

The Ford Meter Box Company considers the information in this submittal form to be correct at the time of publication. Item and option availability, including specifications, are subject to change without notice. Please verify that your product information is current.

FORD
The Ford Meter Box Company, Inc.
P.O. Box 443, Wabash, Indiana U.S.A. 46992-0443
Phone: 260-563-3171 / Fax: 800-826-3487
Overseas Fax: 260-563-0167
http://www.fordmeterbox.com
10/29/10

Submitted By:

Badger Meter

Recordall® Cold Water Bronze Disc Meter

Size 5/8, 5/8 x 3/4" (DN 15mm) Model LP

NSF/ANSI Standard 61 Certified, Annex G

DESCRIPTION

Badger Meter offers the Recordall Disc meter in a bronze lead-free alloy. The Lead-Free Alloy (Trade Designation: MLP-LL) meter has been certified to comply with NSF/ANSI Standard 61, Annex G and carries the NSF-61 Mark on the housing. All components of the Lead-Free Alloy meter, i.e., disc, chamber, housing, seals, etc. comprise the certified system.

APPLICATIONS: For use in measurement of potable cold water in residential, commercial and industrial services where flow is in one direction only.

OPERATION: Water flows through the meter's strainer and into the measuring chamber where it causes the disc to nutate. The disc, which moves freely, nutates on its own ball, guided by a thrust roller. A drive magnet transmits the motion of the disc to a follower magnet located within the permanently sealed register. The follower magnet is connected to the register gear train. The gear train reduces the disc nutations into volume totalization units displayed on the register dial face.

OPERATING PERFORMANCE: The Badger Meter Recordall Disc meters meet or exceed registration accuracy for the low flow rates (95%), normal operating flow rates (100 ± 1.5%), and maximum continuous operation flow rates as specifically stated by AWWA Standard C700.

CONSTRUCTION: Badger Meter Recordall Disc meter construction, which complies with ANSI/AWWA standard C700, consists of three basic components: meter housing, measuring chamber, and permanently sealed register. The water meter is available in a Bronze Lead-Free Alloy with externally-threaded spuds. A corrosion-resistant engineered polymer material is used for the measuring chamber.

To simplify maintenance, the register, measuring chamber, and liner/strainer can be replaced without removing the meter housing from the installation. No change gears are required for accuracy calibration. Interchangeability of parts among like-sized meters also minimizes spare parts inventory investment. The built-in strainer has an effective straining area of twice the inlet size.

MAGNETIC DRIVE: Direct magnetic drive, through the use of high-strength magnets, provides positive, reliable and dependable register coupling for straight-reading, remote or automatic meter reading options.

SEALED REGISTER: The standard register consists of a straight-reading odometer-type totalization display, 360° test circle with center sweep hand and flow finder to detect leaks. Register gearing consists of self-lubricating engineered polymer gears to minimize friction and provides long life. Permanently sealed; dirt, moisture, tampering and lens fogging problems are eliminated. Multi-position register simplifies meter installation and reading. Automatic meter reading systems are available for all Recordall Disc meters. All reading options are removable from the meter without disrupting water service.

TAMPER-PROOF FEATURES: Customer removal of the register to obtain free water can be prevented when the optional tamper detection seal wire screw or TORX® tamper resistant seal screw is added to the meter. Both can be installed at the meter site or at the factory.

MAINTENANCE: Badger Meter Recordall Disc meters are designed and manufactured to provide long-term service with minimal maintenance. When maintenance is required, it can be performed easily either at the meter installation or at any other convenient location. As an alternative to repair by the utility, Badger Meter offers various maintenance and meter component exchange programs to fit the needs of the utility.

CONNECTIONS: Tailpieces/Unions for installations of meters on various pipe types and sizes, including misaligned pipes, are available as an option.

Model LP

SPECIFICATIONS

Typical Operating (100% ± 1.5%)	1/2 - 20 GPM (.057 to 4.5 m³/hr)
Low Flow (Min. 95%)	1/4 GPM (.028 m³/hr)
Maximum Continuous Operation	10 GPM (2.3 m³/hr)
Pressure Loss at Maximum Continuous Operation	**5/8":** 2 PSI at 10 GPM (.14 bar at .2.3 m³/hr) **5/8"x3/4":** 1.5 PSI at 10 GPM (.10 bar at 2.3 m³/hr)
Maximum Operating Temperature	80°F (26°C)
Maximum Operating Pressure	150 PSI (10 bar)
Measuring Element	Nutating disc, positive displacement
Register Type	Straight reading, permanently sealed magnetic drive standard. Remote reading or Automatic Meter Reading units optional.
Register Capacity	10,000,000 Gallons, 1,000,000 Cubic Feet, 100,000 m³. 6 odometer wheels.
Meter Connections	Available in bronze and Engineered Polymer to fit 5/8" or 3/4" (DN 15mm) spud thread bore diameter sizes. See table below.

METER SPUD AND CONNECTION SIZES

Size Designation	x	"L" Laying Length	"B" Bore Dia.	Coupling Nut and Spud Thread	Tailpiece Pipe Thread (NPT)
5/8"	x	7-1/2"	5/8"	3/4" (5/8")	1/2"
5/8" x 3/4"	x	7-1/2"	5/8", 3/4"	1" (3/4")	3/4"

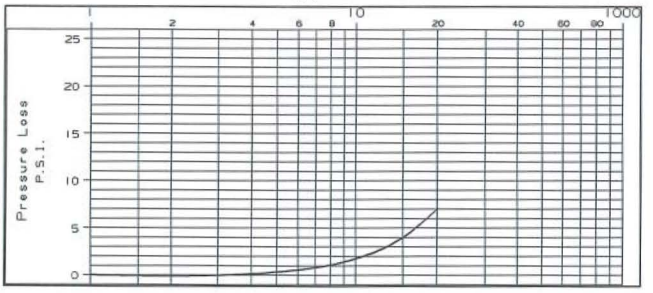
MATERIALS

Meter Housing	Bronze Lead-Free Alloy
Housing Bottom Plates	Bronze Lead-Free Alloy, Cast Iron, Engineered Polymer
Measuring Chamber	Engineered Polymer
Disc	Engineered Polymer
Trim	Stainless Steel, Bronze
Liner/Strainer	Engineered Polymer
Disc Spindle	Engineered Polymer
Magnet	Ceramic
Magnet Spindle	Engineered Polymer
Register Lid and Shroud	Engineered Polymer, Bronze

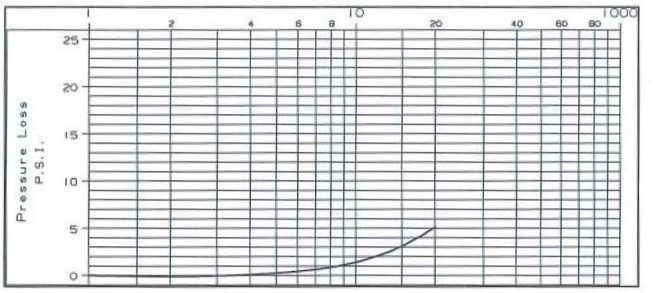
PRESSURE LOSS CHARTS

Rate of Flow, in Gallons per Minute

5/8"



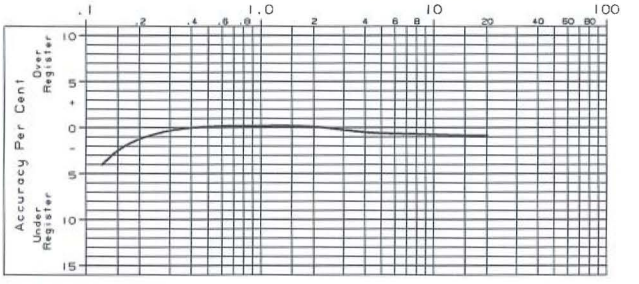
3/4"



METER SIZE	METER MODEL	A LAYING LENGTH	B HEIGHT REG./RTR*	B HEIGHT ADE*	C CENTERLINE BASE	WIDTH	APPROX. SHIPPING WEIGHT
5/8", 5/8" x 3/4" (15mm)	LP	7 1/2" (190mm)	3.70"/4.12"	4.62"	1.26"	3.75"	3 lbs.

ACCURACY CHART

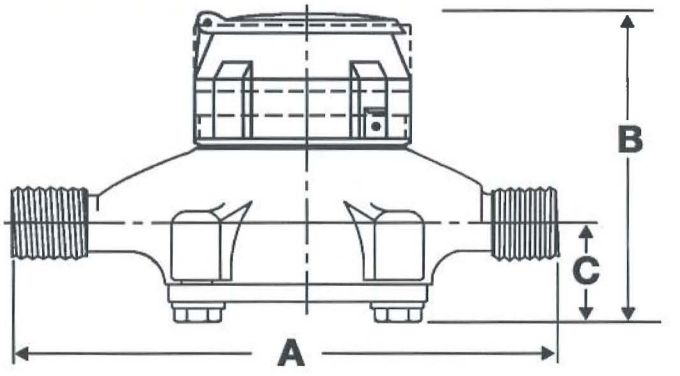
Rate of Flow, in Gallons per Minute



Sweep Hand Registration			
MODEL	GALLON	CU. FT.	CU. METER
LP	10	1	.1

Register with Plastic Lid and Shroud

Register with Bronze Lid and Shroud

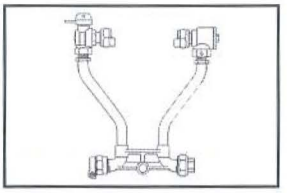


Due to continuous research, product improvements and enhancements, Badger Meter reserves the right to change product or system specifications without notice, except to the extent an outstanding contractual obligation exists.

Badger Meter | P.O. Box 245036, Milwaukee, Wisconsin 53224-9536
800-876-3837 | infocentral@badgermeter.com | www.badgermeter.com

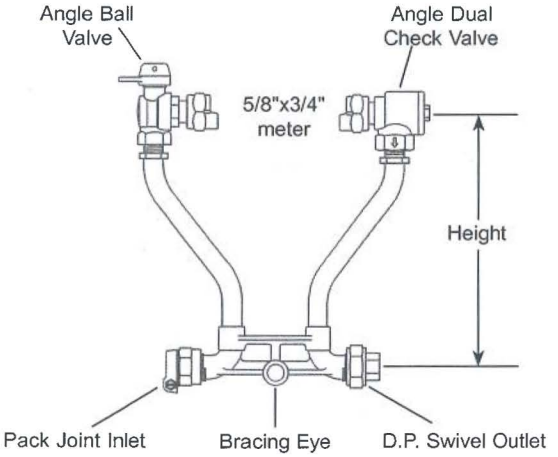
SUBMITTAL INFORMATION

70 Series Coppersetter - *(VBHH72-xxW-41-xx style)*



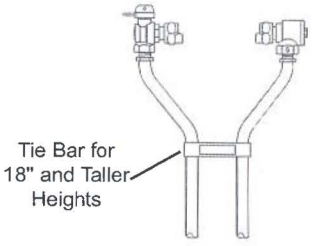
ANGLE BALL VALVE BY ANGLE DUAL CHECK VALVE (5/8" X 3/4" METER)

PACK JOINT FOR COPPER OR PLASTIC TUBING (CTS) INLET BY DOUBLE PURPOSE UNION SWIVEL OUTLET



Coppersetter Part Number

Height (Inches)	Approx. Wt. Lbs.	Catalog Number (Insert Service Line Conn. Size)	√ Submitted Item(s)
7	6.0	VBHH72-7W-41-xx	
9	6.2	VBHH72-9W-41-xx	
12	6.4	VBHH72-12W-41-xx	
15	6.6	VBHH72-15W-41-xx	
18	7.3	VBHH72-18W-41-xx	
21	7.5	VBHH72-21W-41-xx	
24	7.8	VBHH72-24W-41-xx	
27	8.0	VBHH72-27W-41-xx	
30	8.3	VBHH72-30W-41-xx	
33	8.6	VBHH72-33W-41-xx	
36	8.8	VBHH72-36W-41-xx	
39	9.1	VBHH72-39W-41-xx	
42	9.4	VBHH72-42W-41-xx	



HEIGHT OF THE SETTER SHALL BE 12 INCHES

Service Line Size

Inlet	Outlet	Service Line Conn. Size	√ Submitted Item(s)
3/4" (CTS) P.J.	3/4" D.P. Swivel	33	
1" (CTS) P.J.	3/4" D.P. Swivel	43	

Note: Ford recommends insert stiffeners when using plastic pipe or tubing

FEATURES

- All brass conforms to AWWA Standard C800 (ASTM B-62 and ASTM B-584, UNS NO C83600 - 85-5-5-5)
- Saddle Nuts hold the meter in place for tightening.
- Bracing Eye is standard on all 70 Series Coppersetters.
- Tie Bar is standard for 18" and taller Coppersetter heights (72 Series).
- Double Purpose Union Swivels will accommodate male iron pipe threads or flare copper.
- 13/16" Copper Risers provide more flow capacity.
- All Ford Setters are assembled with lead-free solder.
- Copper conforms to ASTM B-75, Copper Alloy #122.
- ASSE 1024 approved Dual Check Valve.

The Ford Meter Box Company considers the information in this submittal form to be correct at the time of publication. Item and option availability, including specifications, are subject to change without notice. Please verify that your product information is current.

The Ford Meter Box Company, Inc.
P.O. Box 443, Wabash, Indiana U.S.A. 46992-0443
Phone: 260-563-3171 / Fax: 800-826-3487
Overseas Fax: 260-563-0167
http://www.fordmeterbox.com

12/14/05

Submitted By:

HANCOR METER PIT SPECIFICATION

Scope

This specification describes 18-, 21-, and 24-inch (450, 525, and 600mm) Meter Pit for use as meter enclosures.

Requirements

Hancor Meter Pits shall be white in color. Meter pits shall have a smooth interior and annular exterior corrugations. Based on ASTM D 2412 at 5% deflection the pipe stiffness for 18-inch (450 mm), 21-inch (525 mm), and 24-inch (600 mm) Meter Pits shall be 40 pii (275 N/m/mm), 34 pii (235 N/m/mm), and 34 pii (235 N/m/mm), respectively. The pits shall be available in 24, 30, 36, 48 inch, and 12 foot (0.6, 0.8, 0.9, 1.2, and 3.7 m) lengths. Meter Pits shall be notched at 0 and 180 degrees at the base to accommodate inlet and outlet pipes.

Material Properties

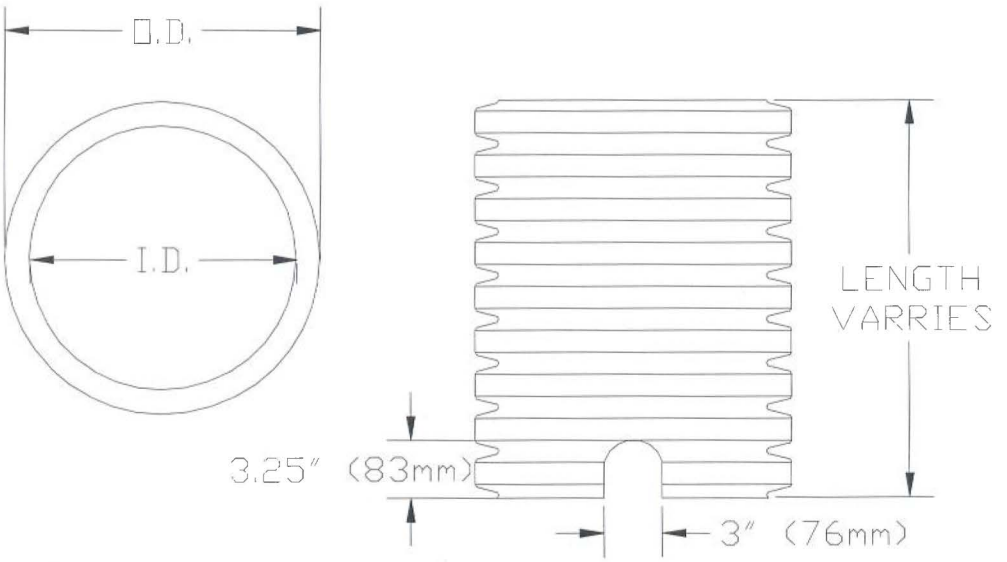
Meter pits shall be high density polyethylene conforming with the minimum requirements of cell classification 424420 B as defined and described in the latest version of ASTM D3350.

Installation

Installation shall be in accordance with Hancor installation instructions or those issued by regional, state, or local agencies.

Nominal Dimensions

Inner Diameter	in (mm)	18 (450)	21 (525)	24 (600)
Outer Diameter	in (mm)	21.5 (546)	25 (635)	28.4 (721)



Warning: This product is not supplied with a grate or lid for means of termination at the ground surface. It is the sole responsibility of the installer/user of this product to adequately insure the product has been covered and secured at the top of the structure/product. Poor installation or failure to adequately cover and secure this product may result in injury to persons and property.

END OF SECTION

SECTION 0008
SANITARY SEWER

Chapter amendments approved:	OMPC	Owensboro	Daviess Co.	Whitesville
Re-adoption of Public Improvement Specifications	24-Mar-77	01-Apr-77	20-Apr-77	?
Revised Public Improvement Specifications	18-Apr-81	22-May-81	26-May-81	06-Jul-81
2002 Revised Public Improvement Specifications	08-Aug-02	No action required by legislative bodies		
Revisions to Exhibits 5-3, 5-10, 5-12, 5-13a, 5-13b, 5-14, 5-15	10-Mar-11	No action required by legislative bodies		
Revisions to Public Improvement Specifications and Exhibits 5-10, 5-13a, 5-13b, 5-14, 5-15, 5-18	09-Jan-14	No action required by legislative bodies		

5.0 PURPOSE AND DESIGN REQUIREMENTS. The purpose of this chapter is to outline the requirements for proper sanitary sewer pipe sizing, construction, and inspection. Unless the requirement is waived by the Engineer, a complete set of construction plans, project specifications, proposed and anticipated future flows and service area, and design calculations shall be made available to him for review and approval. Design and installation criteria shall conform to the Recommended Standards for Wastewater Facilities - 1990 - or latest edition (Great Lakes-Upper Mississippi River Board of State Public Health and Environmental Managers, commonly referred to as 10 State Standards).

5.0.1 Depth. In general sewers shall be sufficiently deep so as to receive sewage from the first floor of all places served by the sewers and to prevent freezing, but shall not be less than four (4) feet of cover, unless otherwise approved by the Engineer.

5.0.2 Slope. All sewers shall be so designed and constructed to give mean velocities, when flowing full of not less than two (2) feet per second. The following are the minimum slopes, as specified in 10 State Standards: however, slopes greater than these are desirable.

Minimum Slope in Feet

Sewer Size	Per 100 Feet
8 inch	0.40
10 inch	0.28
12 inch	0.22
14 inch	0.17
15 inch	0.15
16 inch	0.14
18 inch	0.12
21 inch	0.10
24 inch	0.08
27 inch	0.067
30 inch	0.058
36 inch	0.046

Sewers shall be laid with uniform slope between manholes. Sewers on 20 percent slope or greater or when specified by the Engineer, shall be anchored securely with concrete anchors spaced no further than 36 feet center to center.

5.0.3 Sizing. New sewer systems shall be designed on the basis of an average daily per capita flow of sewage of not less than 100 gallons per day. This figure is assumed to cover normal infiltration, but an additional allowance should be made where conditions are unfavorable. Generally, the main, trunk and outfall sewers shall be designed to carry, when running full, not less than 250 gallons daily per capita contributions of sewage, exclusive of sewage or other waste flow from industrial plants.

No public sewer shall be less than eight (8) inches in diameter. All laterals shall have a minimum grade of 1/8"/ft, including all of the portion of the tap within the right-of-way.

5.0.4 Combined Sewers. Expansion of combined sewers into areas that presently have separate sanitary and storm facilities is not allowed. Replacement combined sewers shall be designed to have adequate capacity to handle 25 year frequency storm events, unless alternate storm event evaluations and/or designs are required by the Engineer.

5.1 PIPE AND FITTINGS. Sanitary sewers shall be constructed of materials per the requirements of Chapter 2 “Materials.”

5.2 TRENCHES EXCAVATION. Unless specifically directed otherwise by the Engineer, no more than 400 feet of trench in open unpaved areas and 100 feet of trench in existing paved areas shall be opened at any time in advance of the pipe, nor shall more than 100 feet be left unfilled. Watchmen or barricades, safety lighting and other such signs and signals as may be necessary to warn the public of the dangers in connection with open trenches, excavation and other obstructions, shall be provided by and at the expense of the contractor.

When so required or when directed by the Engineer, only one-half of street crossings and road crossings shall be

excavated before placing temporary bridges over the side excavated, for the convenience of the traveling public. All backfilled trenches shall be maintained in such a manner that they will offer no hazard to the passage of traffic. The convenience of the traveling public and property owners abutting shall be taken into consideration. All public or private drives shall be taken into consideration and shall be promptly backfilled or bridged at the direction of the Engineer. Excavated materials shall be disposed of so as to cause the least interference, and in every case the disposition of materials shall be satisfactory to the Engineer.

Trenches in which pipes are to be laid shall be excavated in open cut to the depths shown on the approved plans, cut sheets or as specified by the Engineer. The minimum allowable trench width shall not be less than the outside diameter of the pipe plus eight (8) inches on each side. Where rock is encountered it shall be removed to a minimum depth of four (4) inches below the pipe bells.

Unless specifically authorized by the Engineer, trenches shall in no case be excavated or permitted to become wider than two (2) feet six (6) inches plus the nominal diameter of the pipe at the level of or below the top of the pipe. If the trench does become wider than two (2) feet six (6) inches at or below the top of the pipe, special precautions may be necessary, such as upgrading the class of pipe installed, as determined by the Engineer. The contractor shall bear the cost of such special precautions as necessary.

All excavated materials shall be placed a minimum of two (2) feet back from the edge of the trench.

Where conditions exist that may be conducive to slides or cave-ins, proper and adequate sheeting, shoring and bracing shall be installed (see Section 5.7) to provide safe working conditions and to prevent damage to work.

5.2.1 Drainage of Excavations. The Contractor shall maintain all excavations free of water. He shall provide all dams, channels, sumps, or other means necessary to keep the excavation entirely clear of water and shall provide and operate pumps or other suitable equipment of adequate capacity for de-watering the excavations. If necessary or so directed by the Engineer, the Contractor shall place crushed stone to maintain a firm, water free excavation bottom and base. Pipe bedding, laying, jointing, and the placing of concrete shall be done in a water-free trench or excavation. Trenches shall be kept free of water during the pipe installation and until the pipeline has been backfilled.

5.3 PIPE BEDDING

5.3.1 Standard Bedding. Except as specified in 5.3.2 through 5.3.4 all sewer pipe, including lateral taps within a public right-of-way or easement, shall, as a standard practice be laid using Standard Bedding. Such bedding (material shall be as specified in Section 2), shall be placed a minimum depth of four (4) inches below the bottom of the pipe barrel and thoroughly tamped along each side of the pipe to a height equal to 0.5 of the pipe diameter. Bell holes shall be provided at each joint. Bedding material shall be brought up to a minimum four (4) inches above the top of the pipe.

5.3.2 Special Subgrade Improvement. When directed by the Engineer, unsuitable materials below the normal trench depth shall be removed to a depth sufficient to provide a layer of crushed limestone (#6**,** #3, or #57 as specified by Engineer) to support the pipe and prevent settlement. The pipe shall then be laid on Dry Mix Concrete Bedding or Standard Bedding placed over the Special Subgrade Improvement.

5.3.3 Dry Mix Concrete Bedding. In areas where wet mucky soil, unstable soil or "running sand" is encountered or as otherwise directed by the Engineer, sewer pipe shall be laid on Dry Mix Concrete. The concrete shall be minimum 2500 psi 28 day strength Class "B" as per Section 2.1. The cement, sand and stone shall be thoroughly mixed (no water) and placed in the trench, to a minimum depth of four (4) inches below the bottom of the pipe. Dry mix concrete shall be thoroughly tamped along each side of the pipe to a height equal to 0.3 of the pipe diameter. Only enough water shall be added to the concrete, after the pipe is in place, to cause hydration of the cement. After water is added the pipe grade shall be rechecked, adjusted as necessary and the concrete re-tamped along the side. The sewer trench shall be kept water free during pipe laying and until the concrete has set. (See Exhibit 5.1 SD - Section No. 8)

5.3.4 Rock Cut Bedding. If the foundation is in rock the excavation shall be undercut to a depth of four (4) inches below the bottom of the pipe bell. The pipe shall be laid on a bed of granular material to provide continuous support for the lower section of the pipe. Granular bedding shall be #57, #67 or 610's.

5.4 LAYING PIPE. The laying of sewer pipe in finished trenches shall be commenced at the lowest point so that the spigot ends point in the direction of flow (bell pointed upstream). Prior to making pipe joints, all joint surfaces shall be clean and dry and free from gravel or other

extraneous materials. All necessary lubricants or adhesives shall be used as recommended by the pipe manufacturer. No section of pipe shall be brought into position for jointing until the preceding section has been bedded and secured in place.

5.4.1 Line and Grade. Control stakes (vertical and horizontal) shall be set at maximum 100' intervals and at manholes by a licensed land surveyor. The Contractor/ Developer shall use a pipe laser and target for maintaining line and grade. A calibrated survey transit shall be on site to verify line and grade compliance. All adjustments to line and grade must be made by scraping away or filling in under the barrel of the pipe and not by wedging or blocking up any portion of the pipe or striking the pipe in an effort to drive it down.

The Contractor shall be responsible for maintaining grades and elevations as called for on the drawing profiles, and any variances found shall be corrected by the Contractor at his own expense.

All pipe lengths shall be laid with ends abutting and true to line and grade as given by the Engineer. They shall be fitted and matched so that when laid they will form a sewer with a smooth and uniform invert. Supporting of pipe shall be as set out hereinbefore under "Pipe Bedding".

Branches, fittings and specials for sewer lines shall be provided and laid as and where directed by the Engineer or shown on the plans.

Before each piece of pipe is lowered into the trench, it shall be thoroughly inspected to insure it's being clean. Each piece of pipe shall be lowered separately. No piece of pipe or fitting which is known to be defective shall be laid or placed in the lines. If any defective pipe or fitting shall be discovered after the pipe is laid, they shall be removed and replaced with a satisfactory or fitting without additional charge. In case a length of pipe is cut to fit in a line, it shall be so cut as to leave a smooth end at right angles to the longitudinal axis of the pipe and a repair type coupling used as a splicing device.

When laying of pipe is stopped for any reason, the exposed end of such pipe shall be closed with a suitable temporary tight-fitting plug fitted into the pipe bell, so as to exclude earth or other material, and precautions taken to prevent flotation of pipe by runoff into trench. The end of the pipe installed shall be adequately buried to prevent flotation and adequately marked so that it may be hand dug to prevent damage when re-excavated.

5.5 BLASTING. When it is necessary to use blasting during pipe excavation, the contractor shall follow the procedure as specified hereinbefore in Chapter 3 "Streets", Section 3.4.3.

5.6 OBSTRUCTIONS. In cases where storm sewers, gas lines, water lines, telephone lines, and other utilities, or other underground structures are encountered, they shall not be displaced or damaged. If relocation is necessary, or damage has occurred, the appropriate utility shall be notified immediately. All such lines or underground structures damaged in the construction shall be replaced at the Contractor's/ Developer's expense, unless in the opinion of the Engineer, such damage was caused through no fault of the Contractor.

The Contractor shall notify Kentucky Underground Protection, Inc. (BUD System) and all potentially affected utility companies that are not participating in the BUD System prior to excavation adjacent to their facilities.

The Contractor's attention is further directed to Chapter 1 "Introduction", Section 1.11 for additional requirements.

5.7 SHORING, SHEETING AND BRACING OF EXCAVATIONS. The Contractor shall furnish, place and maintain adequate sheeting and bracing or trench boxes as is necessary to support the sides of the excavation and prevent any movements of earth which could, in any way, diminish the width of the excavation to less than the amount necessary for proper construction, cause damage to the sewer or structure being constructed or to adjacent structures, utilities, pavements or walks, or cause injury to workmen or others through movement of the adjacent earth banks, or to otherwise damage or delay the work. All work shall comply with O.S.H.A. Regulations 29 CFR 1926.650-.652.

Sheeting left in place shall be cut off at least 48 inches below the ground surface. All sheeting, bracing and shoring which is to be removed shall be done in a manner that will not endanger the completed work or other structures. The Contractor shall exercise care to prevent the opening of voids during the extraction process. Any voids created while pulling sheeting shall be immediately filled with flowable fill or fine gravel backfill densified by flushing and jetting of water.

Adequate and proper shoring of all excavations shall be the entire responsibility of the Contractor; however, the Engineer may require the submission of shoring plans (accompanied by supporting computations) for review prior to the Contractor undertaking any portion of the work.

Existing foundations that are adjacent to and above an excavation shall be supported by shoring, bracing or underpinning as long as the excavation remains open, or thereafter if required to insure the stability of the foundation and structure. The Contractor shall be held strictly responsible for any damage to said foundations.

Even though computations shall determine the size of the various components, no timber sheeting less than two inches in thickness and no timber bracing, cross bracing or struts less than six inches by six inches will be acceptable.

Solid sheeting will be required for wet or unstable material. It shall consist of continuous vertical sheet piling of timber or steel with suitable whales and braces.
Care shall be taken to avoid excessive backfill loads on the completed pipelines. The requirement that the width of the ditch at the level of the crown of the pipe be not more than two feet six inches plus the nominal diameter of the pipe, as set out in Section 5.2, shall be strictly observed.

Trench sheeting shall not be removed until sufficient backfill has been placed to protect the pipe.

All sheeting, planking, timbering, bracing and bridging shall be placed, renewed and maintained as long as is necessary.

5.8 BACKFILLING PIPELINE TRENCHES. All backfilling shall be accomplished in accordance with the specifications described herein.

When directed by the Engineer, or as otherwise needed, the Contractor shall add water to the backfill material or dry out the material, to attain a condition near optimum moisture content (generally between plus 2% and minus 4% of optimal moisture content) to reach maximum density of the material when it is tamped. The Contractor shall obtain compaction of the backfill of at least 95 percent of Standard Proctor (ASTM D 698) density where mechanical tamping of backfill is required.

Before final acceptance, the Contractor will be required to level off all trenches or to bring the trench up to the level of the surrounding terrain. The Contractor shall also remove from roadways, rights-of-way and/or private property all excess earth or other materials resulting from construction.

In the event that pavement is not placed immediately following trench backfilling in streets and highways, the Contractor shall be responsible for maintaining the trench surface in a level condition at proper pavement grade at all times.

In all cases walking or working on the completed pipelines except as may be necessary in tamping or backfilling will not be permitted until the trench has been backfilled to a point one foot above the top of the pipe. The filling of the trench and the tamping of the backfill shall be carried on simultaneously on both sides of the pipe in such a manner that the completed pipeline will not be disturbed and injurious side pressures do not occur.

5.8.1 Method "A" - Backfilling in Open Terrain. Backfilling of pipeline trenches in open terrain shall be accomplished in the following manner:

The lower portion of the trench, from the pipe bedding to a point 12 inches above the pipe shall be backfilled with material free from rock and as acceptable to the Engineer. This material shall be placed in six (6) inch layers along each side of the pipe taking care to keep the level of fill on each side of the pipe equal.

Compaction shall be accomplished by hand-tamping or by approved mechanical methods. Upon approval of the Engineer, crushed stone, or fine gravel may be used as backfill in lieu of compacted earth.

The upper portion of the trench above the compacted portion shall be backfilled with material that is free from large rock. Incorporation of rock having a volume exceeding one-half cubic foot is prohibited. Backfilling this portion of the trench may be accomplished by any means approved by the Engineer. The trench backfill shall be heaped over or leveled.

5.8.2 Method "B" - Backfilling Under Sidewalks and Unpaved Driveways. Backfilling of pipeline trenches under sidewalks and unpaved driveways shall be accomplished in the following manner:

The lower portion of the trench from the pipe bedding to a point 12 inches above the top of the pipe shall be backfilled with material free from rock and/or acceptable to the Engineer. This material shall be placed in six (6)

inch layers along each side of the pipe taking care to keep the level of fill in each side of the pipe equal.

Compaction shall be accomplished by hand-tamping or by approved mechanical methods. Upon approval of the Engineer, crushed stone, or fine gravel may be used as backfill in lieu of compacted earth**.** Flowable fill is also an acceptable backfill material.

The middle portion of the trench, from a point 12 inches above the top of the pipe to a point six (6) inches below the grade line, shall be backfilled with material free from rock and/or acceptable to the Engineer. This material shall be placed and compacted in layers of approximately six (6) inches.

Upon approval of the Engineer, the Contractor may backfill the middle portion of the trench with crushed stone or fine gravel in lieu of materials that require compaction.

The upper portion of the trench shall be temporarily backfilled and maintained with crushed stone or gravel until such time as the sidewalk is constructed or the driveway surface is restored.

5.8.3 Method "C" - Backfilling Under Streets, Roads and Paved Driveways. Backfilling of pipeline trenches under streets, roads and paved driveways shall be accomplished in the following manner:

The lower portion of the trench, from the pipe bedding to a point eight (8) inches (10 inches for streets classified above local street) below the bottom of the pavement or concrete sub-slab, shall be backfilled with crushed stone, fine gravel or DGA. Flowable fill is also an acceptable backfill material.

The upper portion of the trench, from a point eight (8) inches (10 inches for streets classified above local streets) below the bottom of the pavement or concrete sub-slab up to grade, shall be backfilled with a base course of dense graded aggregate or crushed stone, suitable to the Engineer. At such time that pavement placement is accomplished the excess base course shall be removed as required.

Backfilling with compacted soil or jetted soil backfill may be allowed for development of new streets or roadways, if specifically approved by the Engineer. Acceptable soil for backfill and adequate time for settling and drying of backfill will be required.

5.9 TESTING OF LINES. The testing of sewage force mains and gravity sewers shall be accomplished in accordance with the procedure listed hereinafter.

5.9.1 Sewage Force Mains. On all projects involving the installation of sewage force mains, the finished work shall comply with the provisions listed below, or similar requirements that will insure equal or better results:

a. Hydrostatic testing Force mains shall be tested by performing a hydrostatic test. The force main shall be completely filled with water and subjected to an internal pressure of 100 psi or twice the surge plus operating pressure, whichever is greater, not to exceed 125 percent of the maximum pressure rating for the pipe, measured at the downstream end. The pressure shall be held for a period of two (2) hours. During the test, leakage from the force main shall be measured. The maximum allowable leakage shall be $^1/_2$ gallon per inch diameter per 1,000 feet of pipe per hour.

b. Where practicable, pipelines shall be tested between line valves or plugs in lengths of not more than 1500 feet.

c. Pipelines shall be tested before backfilling at joints except where otherwise required by necessity, local ordinance, or public convenience.

d. Duration of test shall be not less than two hours where joints are exposed and not less than 24 hours where joints are covered.

e. Where leaks are visible at exposed joints and/or evident on the surface where joints are covered, the joints shall be re-caulked, re-poured, bolts re-tightened or re-laid, and leakage minimized, regardless of total leakage as shown by test.

f. All pipe, fittings and other materials found to be defective under test shall be removed and replaced at the Contractor's expense.

g. Lines that fail to meet tests shall be repaired and re-tested as necessary until test requirements are complied with.

h. Where nonmetallic joint compounds are used, pipelines should be held under normal operating pressure for at lease three (3) days before testing.

5.9.2 Gravity Sanitary Sewer Lines. On all projects involving installation of sanitary sewer lines, the finished work shall comply with the provisions listed below or similar requirements that will insure equal or better results.

After the new sewer system has been installed, and prior to final inspection, the Contractor shall clean out the entire system by pushing through each individual line in the system, from manhole to manhole, appropriate tools for the removal of any and all dirt, debris and trash from the lines.

During or subsequent to the final inspection, the Engineer will inspect each individual line, from manhole to manhole, either by use of televisions, lights or other means at his disposal to determine whether the completed lines are true to line and grade as shown on the plans.

All lines or sections of lines that are found to be laid improperly, contain broken or leaking sections of pipe, not properly jointed, or are obstructed in such a manner that they cannot be satisfactorily corrected otherwise, shall be removed and replaced at the Contractor's expense.

The Contractor shall lay sewer lines so as to generally be water tight, including house connections. In no case shall the rate of leakage exfiltration or infiltration average more than 200 gallons per inch pipe diameter per 24 hours per mile of sewer. Any locations of visible leakage shall be replaced or repaired as otherwise approved by the Engineer. The length of the main sewers shall be used in making the foregoing computation even though the house connections (from the main sewer to the property line) should be in place and included as a part of the system when infiltration is measured.

On all projects involving the installation of gravity sewers, the finished work shall comply with the provisions listed below, or similar requirements that will insure equal or better results:

a. Deflection test. Deflection tests shall be performed on all flexible pipe. The test shall be conducted after the final backfill has been in place at least 30 days to permit stabilization of the soil-pipe system. All jetting activity shall be completed prior to deflection testing. No pipe shall exceed a deflection of five (5) percent. A properly sized, manufactured mandrel shall be used for deflection test. It shall have a diameter not less than 95% of the nominal inside diameter of the pipe, depending on which is specified in the ASTM Specifications. The pipe shall measure in compliance with ASTM D 2122. The test shall be performed without any mechanical pulling devices**.**

b. Air test. Low Pressure Air test shall be performed for all gravity sewer lines. The internal pressure applied shall be at least four (4) psi greater than the maximum pressure that may be exerted by groundwater above the invert of the pipe at the time of the test. However, the internal air pressure in the line shall not be allowed to exceed eight (8) psi. When groundwater pressure is believed to possibly exceed four (4) psi, in the opinion of the Engineer, the Contractor shall also conduct infiltration tests. The air tests shall be performed in accordance with the current Unibell Standard as shown in Exhibit 5-17.

c. Infiltration test. If, in the opinion of the Engineer, the air test may not be conclusive due to groundwater pressure, the Engineer may require infiltration tests to be performed by the Contractor in addition to the air test.

d. Vacuum test. Vacuum testing of manholes may be required by the Engineer, when concerns exist about possible infiltration due to high groundwater and/or deep manholes, manhole construction or manhole installation. Vacuum testing shall be done in accordance with ASTM C1244-93 (current edition). Where practical, testing shall be performed prior to backfilling around the structure. If testing is performed following backfilling, proper determination of groundwater elevation shall be completed and appropriate adjustment made for vacuum testing pressure.

e. Leakage. Regardless of test results, all visible leaks shall be corrected.

5.10 STEEL CASING PIPE. Steel casing pipe for highway or railroad crossings shall be bored and/or jacked in place. All joints between lengths shall be solidly welded with a smooth non-obstructing joint inside.

After the pipe has been installed in the casing pipe, inspected and tested, both ends of the cover pipe shall be sealed completely with concrete or and EPDM elastomeric membrane, in a manner acceptable to the Engineer.

5.10.1 JACK AND BORE CONSTRUCTION. All encasement pipes shall be installed at locations and to the line and grade as shown on the Plans. Encasement pipes shall be steel seamless pipe and shall be new material, with a minimum yield of 35,000 psi. All steel pipe shall conform to requirements of ASTM A53-B and A139. Pipe thickness shall be as follows:

Casing pipe size	min. thickness (under hwy)
14" & under	0.250"
16" to 22"	0.375"
24" to 36"	0.500"

All joints in the encasement pipe shall be welded. Weldings of the steel casing pipe shall be solidly butt-welded with a smooth non-obstructing joint inside and conform to all specifications as required by American Welding Society (AWS). The casing pipe shall be installed without bends. All welders shall be qualified as prescribed by AWS requirements.

Carrier pipes installed inside casing pipes shall be centered throughout the length of the casing pipe. This shall be accomplished by the installation of polyethylene pipeline spacers attached to the carrier pipe in such a manner as to prevent the dislodging of the spacers as the carrier pipe is pulled or pushed through the casing pipe. Spacers shall be of such dimensions to provide: full supportive load capacity of the pipe and contents; such thickness to allow installation and/or removal of the pipe; allowance of no greater than $^1/_2$ inch movement of the carrier pipe within the casing pipe after the pipes are installed. All pipe spacers shall be fastened and installed per manufacturer's specifications. They shall be located immediately behind each bell and at a maximum spacing dimension as follows:

Carrier Pipe Size	Maximum spacing
10" & under	7'
12" to 26"	10'

The materials and spacing to be used shall

The void between the carrier pipe and the steel casing pipe shall be thoroughly sealed by filling with a waterproofing bitumastic compound until a tight sealed is obtained. An ethylene propylene diene monomer (EPDM) elastomeric membrane shall be wrapped around the end of the encasement pipe in three layers and securely bound to the casing and carrier pipe barrel with stainless steel bands. The EPDM membrane shall be a minimum 0.045 inches thick and have a tear resistance of 125 pounds/inch. Spacers and end seals shall be as manufactured by Advance Products, Inc., PSI, or other approved equal.

The void between the carrier pipe and the steel casing pipe shall be grout filled if so directed by the Engineer.

5.11 WARNING TAPE. Warning tape shall meet the standards in Section 2.14. Warning tape shall be installed 18" above all direct buried force mains as the backfill progresses. The tape shall be installed in accordance with manufacturers recommendations. Tape splices shall be knotted in a manner to provide continuous coverage over the sewer pipe. The tape shall be placed in a manner such that trench backfill and settlement will not place significant tensile stress on the material.

5.12 TRACER WIRE AND MARKERS. Tracer wire shall meet the standards in Section 2.15. The Contractor/ Developer shall install a trace wire along the entire force main system. The tracer shall be continuous along the main with no gaps, breaks or open circuits. The insulated copper wire shall be installed along the top elevation of the pipe, secured with duct tape, at a maximum spacing of six (6) foot intervals, with the wires strung straight, but not taut. The wire shall be brought to the surface inside a one (1) inch PVC conduit, at each terminus point, any valve structure and any air release valve structure. Said conduit shall be on the outside of the structure and care shall be taken to assure that the conduit is resting against the structure during backfill procedures.

Splices in the tracer wire shall provide a positive, secure connection and shall be protected by wrapping with electrical tape, approved electrical connector or electrical sealing compound. The wire shall be loosely strung and shall not be pulled taut. All tracer wire shall be tested for continuity by the Contractor/Developer in the presence of an RWRA representative, and shall satisfactorily convey electrical signal.

Force Main Markers will be provided by RWRA. They shall be installed by the Contractor/Developer as directed by RWRA.

5.13 MANHOLES. Manholes shall be installed at the end of each line; at all changes in grade, size or alignment; at all intersections; and at distances not greater than 500 feet for collector sewers and 600 feet for interceptors. Sanitary manholes shall be constructed of precast concrete (see Std. Drawing Exhibit 5.2SD) and shall be of the form and dimensions as shown on the approved plans. They shall be constructed of 4000 psi concrete. Cast in place manhole bases shall be a minimum 3500 psi concrete. All precast manhole adjustment rings, cones, flat slabtops, barrel sections and bases shall conform to the requirements of ASTM C 478. All structure shall be designed to handle HS-

20 loading. All cone and transition sections shall be eccentric in shape. Base and riser sections shall be custom-made with openings to meet indicated pipe alignment conditions. The maximum size pipe allowed in a given sized manhole shall be as follows. 24" pipe in four (4) foot diameter structure, 36" pipe in five (5) foot diameter, 48" in six (6) foot diameter. Outside diameter may be considered on a case-by-case basis for other pipe materials. The minimum distance allowed between precast holes for the pipes shall be 12 inches, or $^1/_2$ the outside diameter, whichever is larger.

Openings in precast structures for pipes shall be the outside diameter of the pipe plus a maximum of six (6) inches. In order to use non-shrink grout, the opening shall be the outside diameter of the pipe plus three (3) inches. (Outside diameter of pipe plus 4 $^1/_2$ inches is permissible when tapered hole forms are utilized).

Openings around the pipe in precast structures shall either be filled with non-shrink grout for the wall thickness of the structure or the pipe shall be encased with minimum six (6) inch collar of concrete from the inside face of the wall to 1'0" outside the outer face of the wall. The pipe shall be adequately supported to prevent settling while the grout or the concrete encasement is setting up. The inside faces of the structure walls shall be finished with a trowel and wet brush finish.

5.13.1 Standard Manholes. The standard manhole shall be six feet or less in depth, measured from the base of the cover frame to the manhole downstream invert and shall be of cone type, top construction as shown on Std. Drawing Exhibit 5.2SD.

5.13.2 Shallow Manholes. The shallow manholes shall be five feet or less in depth, measured from the base of the cover frame to the manhole downstream invert and shall be of flat top construction as shown on Std. Drawing Exhibit 5.2SD.

5.13.3 Manhole Inverts over existing sewers. Manhole inverts shall be formed from 3500 psi concrete as shown on Exhibit 5.2SD. Inverts for a "straight-through" manhole shall be formed by laying the pipe straight through the manhole, pouring the concrete invert, and then cutting out the top half of the pipe. Curved invert shall be constructed of concrete, as shown, and shall form a smooth, even half-pipe section as shown. The inverts shall be constructed when the manhole is being built using prefabricated forms. The excavation shall be kept free of water while the manhole is being constructed and the manhole shall not be backfilled until inspected by the Engineer.

5.13.4 Manhole Frames and Lids. Manhole castings shall consist of cast iron frames and 22-3/4 inch diameter covers, weighing not less than 300 pounds per frame and cover, rated for traffic**,** dimensioned as shown on the plans. Manhole lids must sit neatly in the rings, with contact edges machined for even bearing and tops flush with ring edge. They shall have sufficient corrugations to prevent slipperiness. Lids on sanitary sewer manholes must not be perforated. Lids shall be bolt-down or supplied with an approved diaphragm as may be warranted when surface flooding is a potential. Castings shall meet the requirements for ASTM A 48.

5.13.5 Watertight Sewer Pipe Connections. Watertight sewer pipe connections shall be elastomeric gaskets or couplings, manufactured in accordance with ASTM C 923, Standard Specification for resilient connectors between reinforced concrete manhole structures and pipes, and shall be on RWRA's list of approved materials.

5.13.6 Joint Sealants. Joint seals shall be either Type A Rubber Gaskets or Forsheda Rubber gaskets. They shall meet the requirements of AASHTO M 198. Bituminous mastic joint sealing material is allowed only if it is a one (1) inch molded mastic compound.

5.13.7 Manhole Concrete Sealants. When required by the engineer, manhole sealants shall be used in accordance with the manufacturer's recommendations and by one of the two following methods.

Method #1: The manhole manufacturer shall give written conformation that all reinforced precast concrete manhole sections contain corrosion resistant admixture. Xypex Admix C-1000 (with dye) or approved equal concrete waterproofing admix shall be added to the concrete during the batching operation. Admixture shall be used per manufacturer's specifications and Engineer's approval.

Method #2: Before assembly, the entire outer surface of the manhole, including the underside of the manhole base, shall receive a minimum of two coats of FARBERTITE (IPA Systems, Inc.), or approved equal, in accordance with manufacturer's application instructions. After assembly (sealing all joints between manhole sections and plugging all lift holes as indicated above), Contractor shall apply a minimum of two coats of DRYCON (IPA Systems, Inc.), or approved equal, to

the entire manhole interior in accordance with manufacturer's mixing and application instructions.

5.13.8 Drops into Standard Manholes. Pipe entries into manholes shall be brought in at the invert or top of shelf where feasible. Drop assemblies are required to smoothly transition flows for all drops of two (2) feet or greater. Drops of less than two (2) feet are not allowed unless specifically approved by the Engineer. When internal or external drop assemblies are necessary, precast external drop manholes shall be preferred. Internal drops are not allowed when the size of the pipe to be dropped is greater than 12" diameter. All manhole structures employing inside drop connections for service connections or collector sewers shall utilize the (RELINER) Inside drop bowl (or approved equal). Bowl size shall be determined by incoming pipe size and flow rate. The connection of the stack pipe to the drop bowl shall be by flexible external pipe coupler (FERNCO). The drop pipe shall be securely attached to the manhole using stainless steel fasteners. Bracket spacing shall be 4' max (2 minimum with the first one being directly below bowl or tee fitting). The turn-out at the base shall be with an appropriately angled PVC pipe elbow. All support hardware, including bolts, shall be stainless steel. See Exhibit 5-10.

5.14 BUILDING CONNECTIONS. In both separate and combined sewer systems, building sanitary laterals shall be run to the right-of-way or easement free of any intrusion of storm water flows (i.e. roof drains, foundation drains, yard drains, groundwater, and geothermal systems). The effort shall be made to daylight all storm flows and to allow for surface storage and/or ground absorption of all storm flows whenever possible. In combined sewer systems the effort shall also be made to keep the sanitary and storm systems separate where possible to facilitate the future separation of the systems**.**

Tee-wye's shall be installed (with the flow) on the collector sewers for all house or building connections at locations established by the developer's Engineer. At least one connection shall be provided for each platted lot. The Contractor shall lay the connection lines from this point to the property line, or easement line.

Each separate dwelling structure, commercial building or industrial building shall be provided with a separate sewer connection. Such connections shall be PVC plastic pipe or Ductile Iron pipe. All connections that service single-family dwellings shall be not less than four (4) inch diameter pipe. All connections that serve multi-family dwellings, commercial buildings and industrial buildings shall be not less than six (6) inches diameter pipe. Trenching, pipe laying, joints and backfilling shall conform to the requirements set out herein. All open ends shall be sealed with PVC or compression joints compatible with the pipe bell.

For shallow sewers in rock or earth trench, the tee-wyes shall be encased entirely with crushed stone and fully compacted. The pipe shall be laid on a uniform slope from the tee without the use of bends.

For deep sewers in earth, the tee-wyes shall be encased entirely with crushed stone as above. House connection pipe in this case shall be appropriate extra strength sewer pipe from the tee branch to the property line. The pipe shall be laid on a uniform grade from the tee branch to the right-of-way to meet the probable building sewer grade (at a max of 45^{o} incline).

For deep sewers in rock, the tees shall be encased entirely with Class "B" concrete. House connection pipe in this case shall be appropriate extra strength sewer pipe, as shown on the drawings extending from the tee to the property line. The pipe shall be laid on a uniform grade from the tee branch to the right-of-way to meet the probable building sewer grade.

Under normal conditions, where elevations are not critical, house connection pipes shall be laid on a slope of not less than one foot per 100 feet (approximately 1/8-inch per foot).

The tapping of house connections into manholes on the newly constructed sewers will not be permitted, except at the end of the collector lines where necessary or required by the Engineer. Where it is necessary to do so, the invert of the house connection shall not be higher than a point three inches below the top of the bench in the manhole and suitable trough shall be provided in the bench to prevent the accumulation of solids on the bench. If necessary, a standard drop connection shall be provided for a house service that is tapped into a manhole.

The installation of house connections shall follow immediately or be concurrent with the construction of the main sewer. This method of construction will permit more advantageous handling of backfilling and will also avoid possible damage to the main sewer by subsequent exposure for connection of the service lines.

5.15 CONNECTIONS TO EXISTING LINES. Connection to existing gravity sewer lines shall be made where indicated on the plans. The connection shall be made

to the main by installing a proper saddle and tee/wye, or constructing a new manhole at the connection. The proper saddle shall include a gasket and stainless steel clamps. If constructing a new manhole, the invert channel shall be formed around the existing sewer line and the top half of the existing sewer line shall be cut away to form the invert channel of the existing line and to accept the invert channel of the new line.

5.16 REMOVAL AND REPLACEMENT OF EXISTING FACILITIES

5.16.1 Sidewalks. See section 9.1.
5.16.2 Pavement. See section 9.2.
5.16.3 Curb and Gutter. See section 9.3.

5.17 CONCRETE CRADLE, ANCHORS, CAPS OR ENCASEMENT. Concrete cradle, anchors, cap or encasement of sewer lines and/or fittings shall be placed where shown on the plans, required by the specifications, or as directed by the Engineer. Concrete shall be Class "B" and shall be mixed sufficiently wet to permit it to flow under the pipe to form a continuous bed. In tamping concrete, care shall be taken not to disturb the grade or line of the pipe or injure the joints. Measures shall be taken to avoid flotation of PVC pipe.

See Std. Drawing Exhibit 5.1 SD.

5.17.1 CONCRETE CAP. Where shown on the Plans or where a sanitary sewer pipe will have less than two (2) feet of vertical clearance below an existing or proposed storm drain, or utility conduit, a concrete cap shall be installed unless the pipe itself is proven to RWRA to have adequate strength. The length of the concrete cap shall be as shown on the Plans or two (2) feet beyond the outside edge of the storm drain or utility conduit, or two (2) feet beyond the point where the sewer pipe attains 30 inches of cover in an easement or four (4) feet of cover in a right-of-way, or surfaces subject to vehicular traffic, or as directed by RWRA. The sewer pipe shall be laid and supported on uniform crushed stone bedding to the top of the pipe, and concrete shall be placed over the pipe to a thickness of at least six (6) inches for the full trench width.

5.17.2 CONCRETE ENCASEMENT. Where shown on the Plans or where conditions exist requiring additional pipe protection (stream crossings, ditch crossings, shallow trench or poor soil conditions), pipes shall be encased in concrete, as determined by RWRA. The length of the concrete encasement shall be at least two (2) feet beyond the point where additional pipe protection is required, as shown on the Plans, or as directed by RWRA. The sanitary sewer or storm drainage pipe shall be laid and supported as required for a concrete for a concrete cradle, and concrete shall be placed around the pipe six (6) inches either side of it and up to at least six (6) inches over the top of the pipe. Proper bracing of the pipe shall be provided to prevent movement or flotation of the sewer pipe during placing of concrete. In rock-bottom streams, the encasement shall extend from 6 inches below the pipe up to the original rock level, unless otherwise shown on the Plans. Encasement shall be required when crossing a blue line stream and shall extend to five (5) feet beyond the top of bank on each side of said stream. Concrete encasement is required for plastic pipe with less than 30 inches of cover in easements and less than four (4) feet of cover in street rights-of-way.

5.18 SAFELOADING. Safeloading shall consist of completely filling the designated areas with grout in such a manner to make them safe from collapse or at the Contractor's option, safeloading may be done by filling the designated area with free-flowing low strength mortar. Appreciable deposits of debris shall be removed from other structures prior to safeloading. The ends of existing culverts shall be plugged by use of bulkheads containing small openings at the tops through which the grout may be pumped at a minimum pressure of 15 pounds per square inch. All structures to be safeloaded shall be completely filled with grout or low strength mortar.

5.19 FLOWABLE FILL. Flowable fill is a low strength mixture consisting of Portland cement, sand, class F fly ash, water and other materials as approved by the Engineer. Flowable fill has a density between 115 .b/cf and 130lb/cf and is of a consistency that will flow under and around pipe. Flowablefill does not require compaction, finishing, or curing and will not settle after hardening occurs. It is ideal for use in restricted areas where placing and compacting fill material is difficult and where traffic cannot be delayed for a long period. When used to backfill aluminum pipe, and approved means of separation shall be provided, such as bituminous coating.

To expedite settlement and hardening of the flowable fill, bleed water shall appear on the surface within five (5) to 10 minutes after placement. The release of water by bleeding caused the solid particles to realign into intimate contact and the mixture becomes firm. A delay in bleeding indicates there are too many fines in the mixture or insufficient water. If the maximum water was added, the fly ash quantity shall be reduced in increments of 50 lbs. until the mixture is bleeding feely. Approximately 60 lbs. of sand shall be added to replace each 50 lbs. increment of fly ash to maintain the original yield. If two increment reductions, 100 lbs., do not promote free bleeding of the

mixture, other possible remedies shall be evaluated. The flowable fill is too dry when cracks develop as it flows into place.

A set of test cylinders shall be cast for each 300 cubic yards of flowable fill. Cylinders shall not be rodded, but the sides of the mold shall be tapped lightly. The test cylinders shall be allowed to bleed for about 30 minutes, refilled, and then covered with a sheet of tough durable impervious plastic or cylinder lid. Plastic shall be secured in place around the mold, within one inch of the top, with a rubber band or string prior to covering the lid with wet burlap. The burlap shall be removed after 34 hours and the cylinder cured at 60 degrees Fahrenheit to 90 degrees Fahrenheit, in the shade, until 28 days old. The plastic covering and mold shall then be removed and the compressive strength test shall be performed. The average of the 28 days compressive strength tests shall be 50 psi to 100 psi. This strength range will provide the optimum balance of adequate cohesion while allowing ease of subsequent removal, if necessary.

5.20 LOCATING NEAR WATER MAINS

5.18.1 Horizontal Separation. Whenever possible, sewers should be laid at least 10 feet, horizontally, from any existing or proposed water main (edge to edge). Should local conditions not allow a lateral separation of 10 feet, a sewer may be laid closer than 10 feet to the water main if:

a. It is laid in a separate trench or the same trench with the water mains located at one side on a bench of undisturbed earth.

b. The elevation of the crown of the sewer is at least 18 inches below the invert of the water main.

5.20.2 Crossings. Sewers crossing water mains shall be laid to provide a minimum vertical distance of 18 inches between the outside of the water main and the outside of the sewer. The crossing shall be arranged so that the sewer joints will be equidistant and as far as possible form the water main joints. Where a water main crosses under a sewer, adequate structural support shall be provided for the sewer to maintain line and grade.

When it is not possible to obtain proper horizontal and vertical separation as stipulated above, the sewer shall be designed and constructed equal to water pipe and pressure tested at 150 psi to assure water tightness prior to backfilling. The pressure pipe shall extend a minimum of 10 feet in each direction from the crossing and be properly connected with an approved manufactured fitting or mechanical joint. The sanitary sewer line or the lower of the two utilities shall be encased in concrete or capped as determined appropriate by the Engineer. The encasement or capping shall extend for 10 feet on both sides of the crossing, measured perpendicular to the water main.

5.21 BASEMENTS AND OTHER STRUCTURES BELOW GRADE. Buildings with any floor level(s) below surrounding ground level, that are connected to the public sewer system are potentially subject to sewer system backup into these floor levels. Therefore, all sanitary sewage lines that will be connected to the sanitary or combined sewer systems must be at an elevation to prohibit sewage backup into the building. This may be accomplished in one of two ways: 1) The building sewer may be installed as a gravity section if the nearest manhole casting downstream is one foot or more lower than the lowest floor level of the building intended to get sewer service, and is certified by a licensed PE/LS to accomplish this; or 2) A sewage ejector pump system may be installed in a manner that allows the discharge line to reach an elevation that assures no backup potential from the sewer system (commonly brought up to just below first floor elevation before dropping back down into the building's sanitary lateral). Sanitary laterals shall not be run at excessive depths that would allow for basement plumbing to gravity to the main.

Only sanitary sewage is allowed to be discharged into the public sewer system. Sanitary sewage does not include any flows from roof drains, foundation drains, yard drains, groundwater sump drains or any other non-wastewater facilities constructed to control the movement of stormwater and/or groundwater. Discharge of any such flows into the building lateral or into any other location that ultimately feeds into the public sewer system is prohibited. See also Section 8.5 for additional information relating to allowed discharge locations for roof drains and foundation drains.

5.22 BUILDING DEMOLITION. During the demolition of any building that has sewer service, the Contractor shall be responsible for locating the tap at the right-of-way or easement line and installing a proper cap on the end of the tap to the public line. Contractor shall comply with permitting and inspection requirements of the Engineer. Expenses incurred by the sanitary sewer service provider shall be assessed to the demolition contractor for failure to properly notify agency for cap inspection.

5.23 GREASE INTERCEPTORS/ GREASE TRAPS / OIL SEPARATORS / MONITORING MANHOLES. Requirements for these facilities shall be as required in the Wastewater System User Regulations, Kentucky Plumbing code and policies of the Regional Water Resource Agency.

Restaurants/ food service facilities with more than two (2) compartment sink are required to install a minimum 1,000 gallon capacity external grease interceptor. External, 1,000 gallon oil separators are required for all service stations, car washes and commercial garages with floor drains.

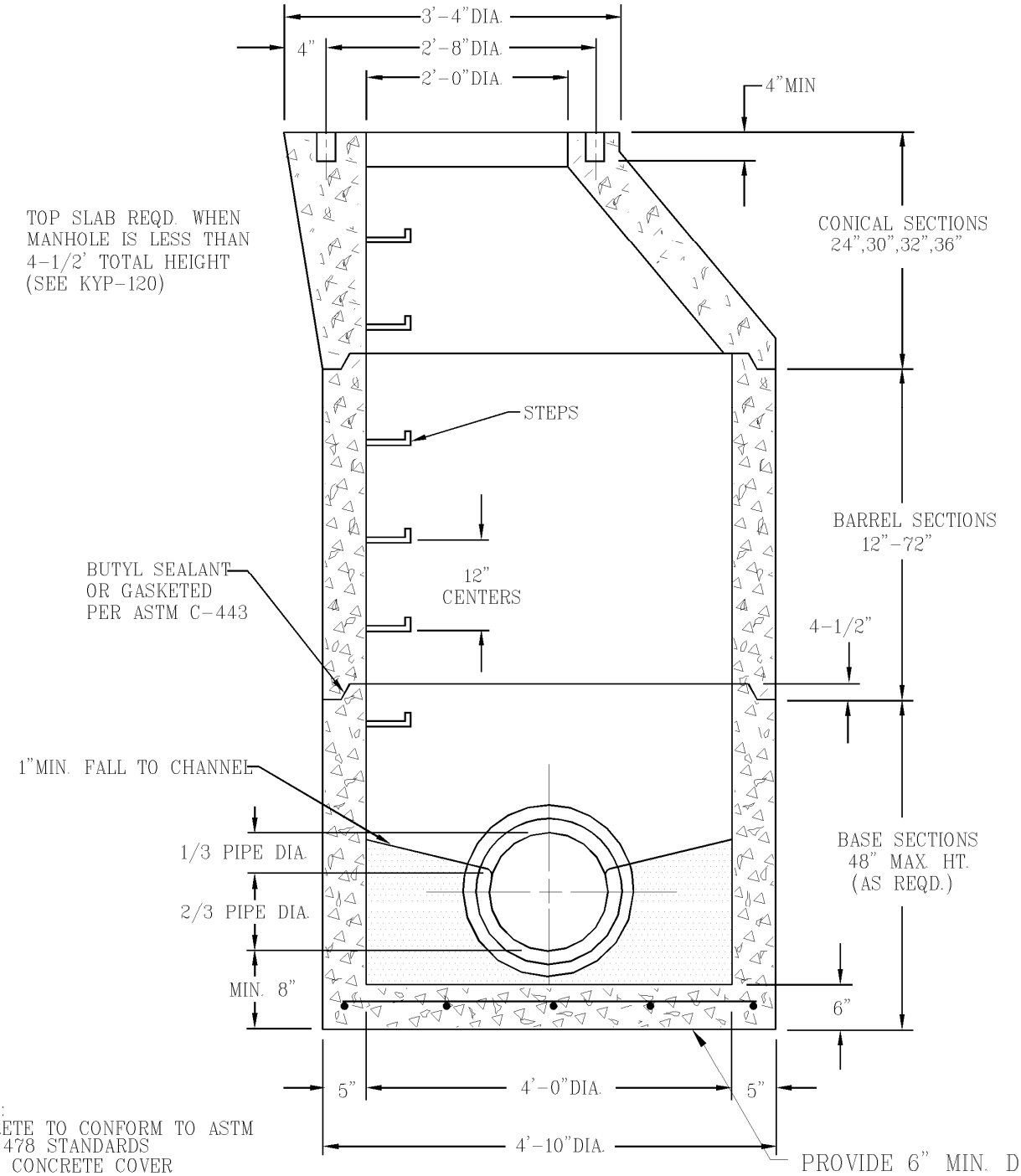
Monitoring/sampling manholes are required for industrial/ commercial discharges unless the requirement is waived by the Engineer.

5.24 FUTURE SEWER CONNECTIONS. When areas adjacent to a proposed development can best be served by sewers through the proposed development, the engineer may require that the developer extend sewer service to the far property line of a development or may require easement be established that would serve the adjacent area.

5.25 REPLACEMENT OF EXISTING MAILBOXES, CULVERTS AND OTHER SUCH FACILITIES. Existing mail boxes, drainage culverts and the like shall not be disturbed unless necessary, in which case, they shall be replaced in as good condition as found as quickly as possible. Existing materials shall be re-used in replacing such facilities when materials have not been damaged by the Contractor's operations. Existing facilities damaged by the Contractor's operation shall be replaced with new materials of the same type at the Contractor's expense.

5.26 CLEAN-UP. Upon completion of the installation of the sewer pipes and appurtenances, the Contractor shall remove all debris and surplus construction materials resulting from the work. The Contractor shall grade the ground along each side of the pipe trench in a uniform and neat manner leaving the construction area in a shape as near as possible to the original ground line.

5.27 SEEDING AND SODDING. Requirements shall be accomplished in accordance with the specifications as outlined in Chapter 10 hereinafter.



SECTION VIEW

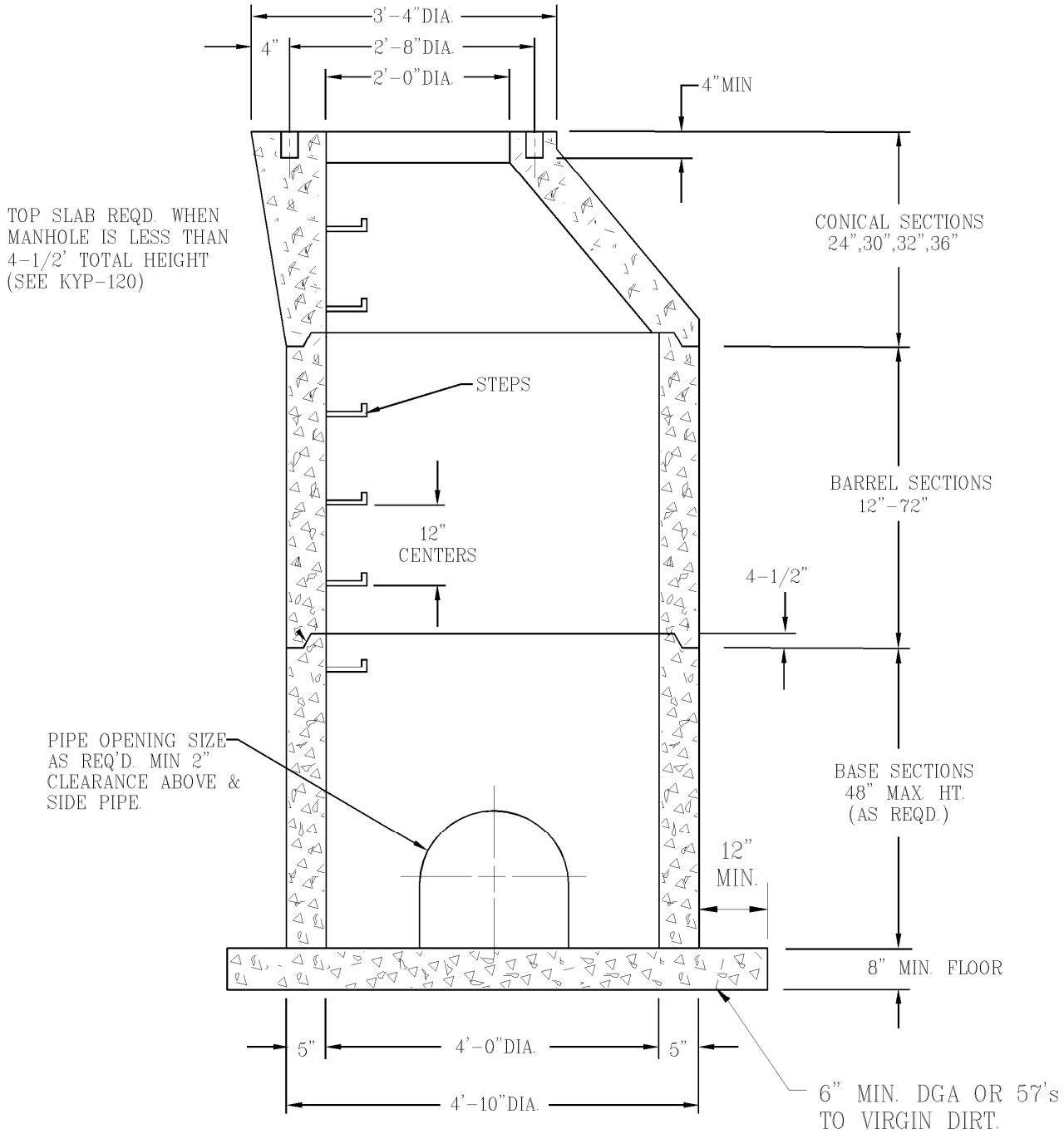
NOTES:
CONCRETE TO CONFORM TO ASTM C-478 STANDARDS
2"MIN. CONCRETE COVER
RESILIENT CONNECTORS MEET ASTM C-923
MEETS OR EXCEEDS ASTM C-478
#5 REBAR @ 12" C.C EA. WAY IN BASE SLAB
WEIGHT: BASE - 4,350lbs. (30" HT.)
RISER - 850lbs./vert.ft.
CONICAL - VARIES
BOOT KORN SEAL OR EQUAL REQ'D
IN THE EVENT OF UNSTABLE, WET OR PUMPING SUBGRADE USE DRY MIX CONCRETE BEDDING OR AS OTHERWISE DIRECTED BY THE ENGINEER.
LEVEL AND TAMP BEDDING MATERIAL PRIOR TO PLACING MANHOLE BASE SECTION
PROVIDE ELASTOMERIC MANHOLE BOOT/WATERSTOP AT EACH MANHOLE OPENING. APPROVED WATERSTOPS INCLUDE:
A: PSX, A-LOCK GASKET OR DURA-SEAL CAST IN PLACE
B: KORN-N-SEAL AND FLEX BOOT COMPRESSION GASKET

OWENSBORO METROPOLITAN
PUBLIC IMPROVEMENT SPECIFICATIONS

CHAPTER 5
SANITARY SEWERS

4'-0" DIA. MANHOLE W/ DEVELOPED BASE
DETAIL SHEET

EXHIBIT NO. 5-1
NOT TO SCALE



SECTION VIEW

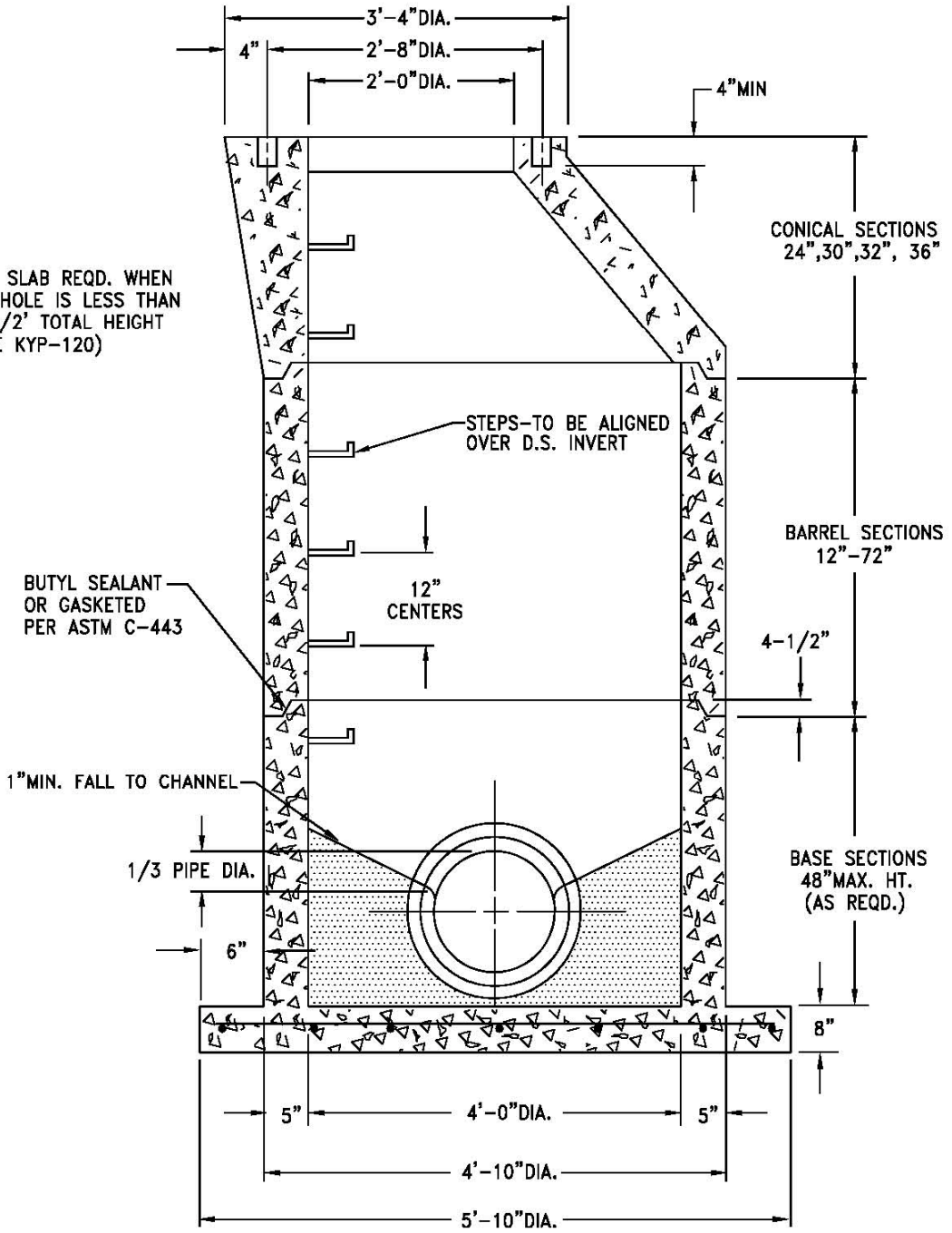
NOTES:
CONCRETE TO CONFORM TO ASTM C-478 STANDARDS
2"MIN. CONCRETE COVER
MEETS OR EXCEEDS ASTM C-478
WEIGHT: BASE - 850lbs./vert.ft.
RISER - 850lbs./vert.ft.
CONICAL - VARIES
FERNCO WATERSTOP OR EQUAL REQ'D

OWENSBORO METROPOLITAN
PUBLIC IMPROVEMENT SPECIFICATIONS

CHAPTER 5
SANITARY SEWERS

4'-0" DIA. OPEN BOTTOM MANHOLE
DETAIL SHEET

EXHIBIT NO. 5-2
NOT TO SCALE



SECTION VIEW

NOTES:
CONCRETE TO CONFORM TO ASTM C-478 STANDARDS
2"MIN. CONCRETE COVER
RESILIENT CONNECTORS MEET ASTM C-923
#5 REBAR @ 12" C.C. EA. WAY IN BASE SLAB
WEIGHT: BASE - 5,530lbs,max
RISER - 850lbs./vert.ft.
CONICAL - VARIES

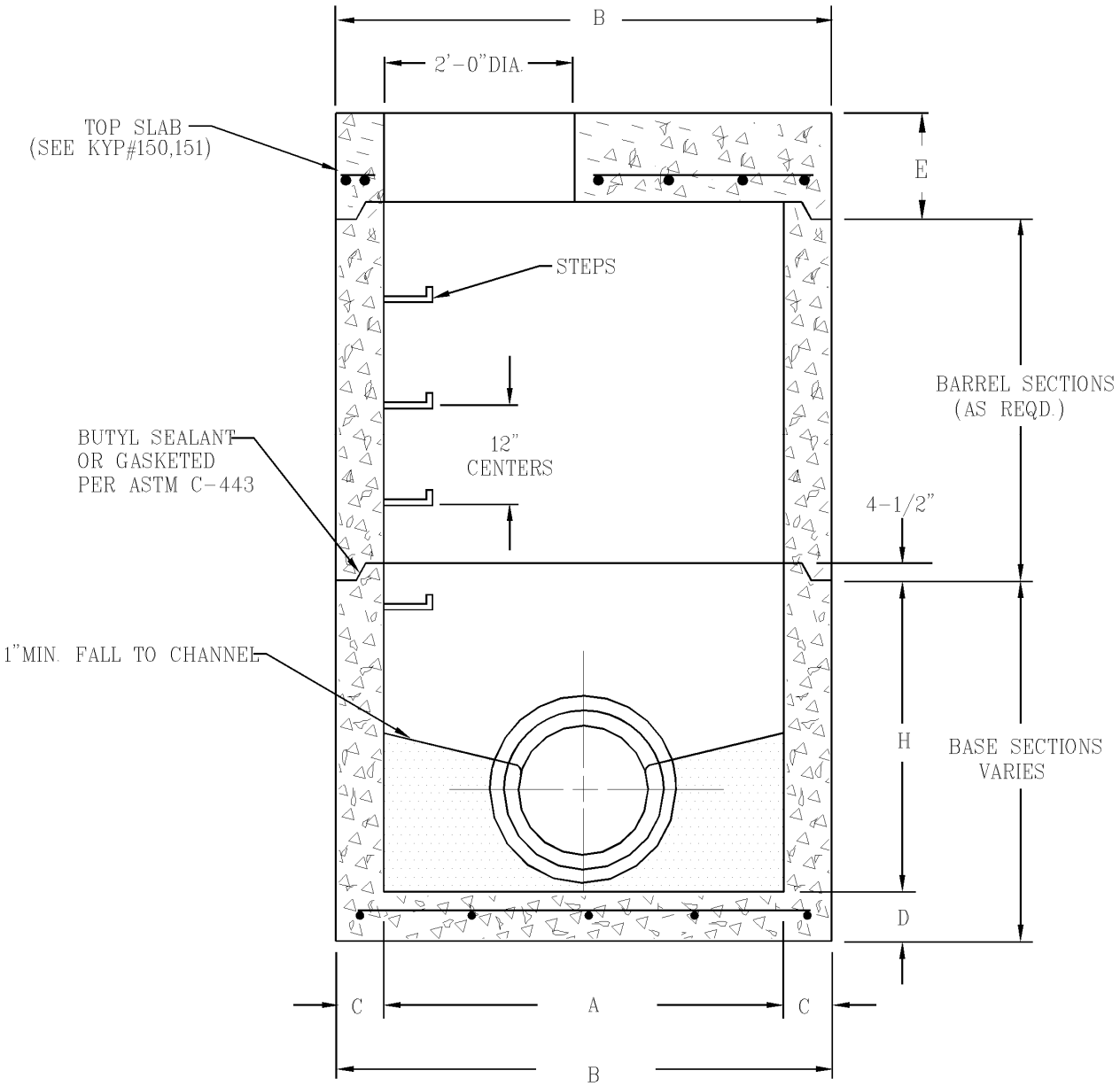
FLANGED BASE MANHOLE TO BE USED ON SEWERS
12' DEEP OR MORE OR AS DIRECTED BY ENGINEER

OWENSBORO METROPOLITAN
PUBLIC IMPROVEMENT SPECIFICATIONS

CHAPTER 5
SANITARY SEWERS

4'-0" DIA. FLANGED BASE MANHOLE W/ INVERT
DETAIL SHEET

EXHIBIT NO. 5-3
NOT TO SCALE



SECTION VIEW

DIMENSIONS							WEIGHTS		
DIA.	A	B	C	D	E	H	BASE	RISER/vert.ft	TOP SLAB
4'-0"	4'-0"	5'-0"	5"	8"	12"	30"	4350lbs.		
5'-0"	5'-0"	6'-0"	6"	8"	13"	48"	8,860lbs.	1,300lbs.	2,825lbs.
6'-0"	6'-0"	7'-2"	7"	8"	14"	48"	15,000lbs.	1,800lbs	4,500lbs.
8'-0"	8'-0"	9'-6"	9"	10"	15"	72"	30,000lbs.	3,100lbs.	8,435lbs.
10'-0"	10'-0"	11'-10"	11"	12"	17"	72"	56,508lbs.	4,368lbs.	15,000lbs.

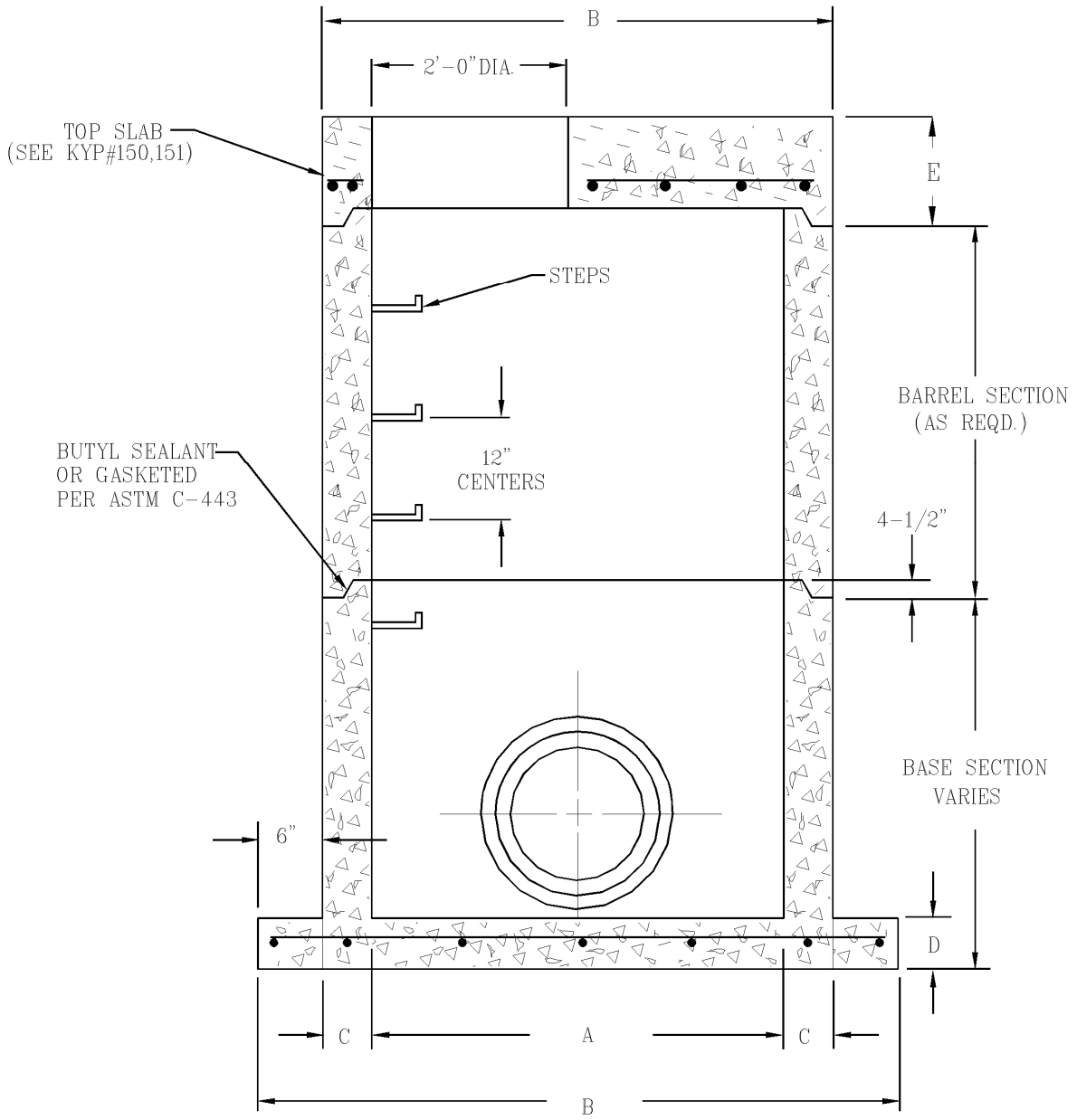
NOTES:
CONCRETE TO CONFORM TO ASTM C-478 STANDARDS
2"MIN. CONCRETE COVER
RESILIENT CONNECTORS MEET ASTM C-923
MEETS OR EXCEEDS ASTM C-478
#5 REBAR @ 12" C.C. EA. WAY IN BASE SLAB

OWENSBORO METROPOLITAN
PUBLIC IMPROVEMENT SPECIFICATIONS

CHAPTER 5
SANITARY SEWERS

4'-10' DIA. MANHOLES W/ INVERTS
DETAIL SHEET

EXHIBIT NO. 5-4
NOT TO SCALE



SECTION VIEW

DIMENSIONS						WEIGHTS		
DIA.	A	B	C	D	E	BASE	RISER/vert.ft	TOP SLAB
5'-0"	5'-0"	7'-0"	6"	8"	13"	7,540lbs.	1,300lbs.	2,825lbs.
6'-0"	6'-0"	8'-2"	7"	8"	14"	14,994lbs.	1,800lbs	4,500lbs.
8'-0"	8'-0"	10'-6"	9"	10"	15"	27,098lbs.	3,100lbs.	8,435lbs.
10'-0"	10'-0"	11'-10"	11"	12"	17"	41,613lbs.	4,368lbs.	15,000lbs.

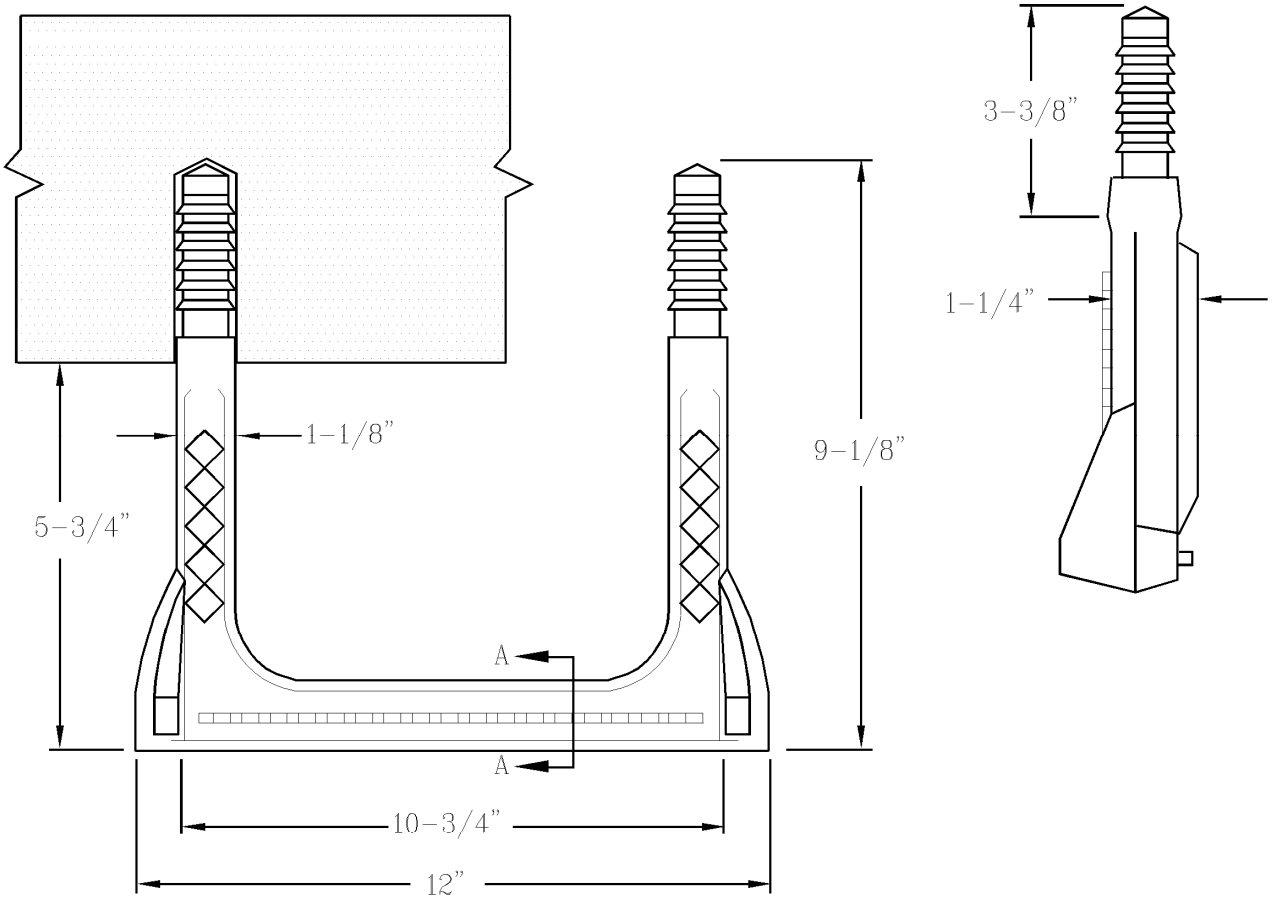
NOTES:
CONCRETE TO CONFORM TO ASTM C-478 STANDARDS
2"MIN. CONCRETE COVER
RESILIENT CONNECTORS MEET ASTM C-923
MEETS OR EXCEEDS ASTM C-478
#5 REBAR @ 12" C.C. EA. WAY IN BASE SLAB

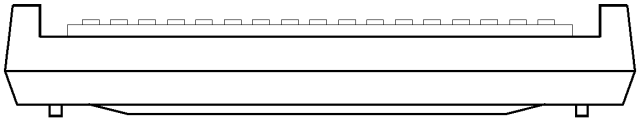
OWENSBORO METROPOLITAN
PUBLIC IMPROVEMENT SPECIFICATIONS

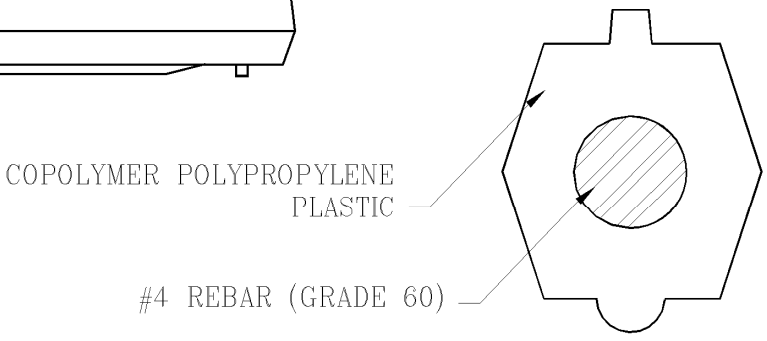
CHAPTER 5
SANITARY SEWERS

5'-10' DIA. FLANGED BASE MANHOLES
DETAIL SHEET

EXHIBIT NO. 5-5
NOT TO SCALE







SECTION A-A

NOTES:

STEPS TO BE INSTALLED IN TAPERED HOLE FORMED OR DRILLED IN CONCRETE STEP IS MANUFACTURED BY M.A. INDUSTRIES, INC.

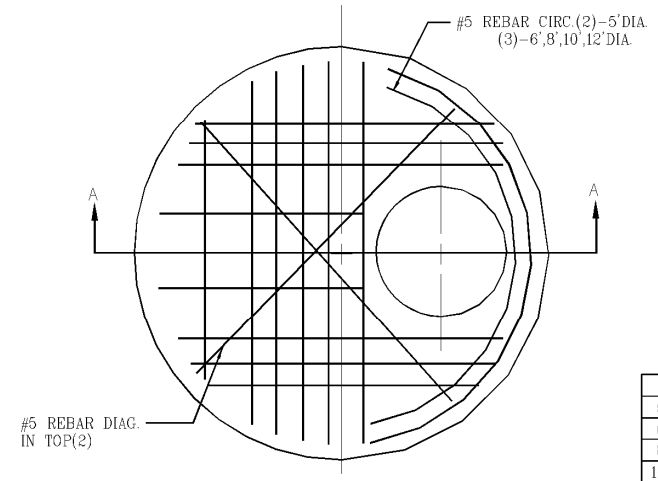
OWENSBORO METROPOLITAN
PUBLIC IMPROVEMENT SPECIFICATIONS

CHAPTER 5
SANITARY SEWERS

PLASTIC MANHOLE STEPS
DETAIL SHEET

EXHIBIT NO. 5-6

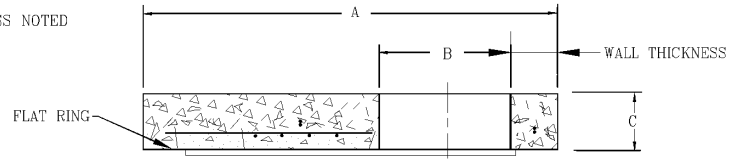
NOT TO SCALE



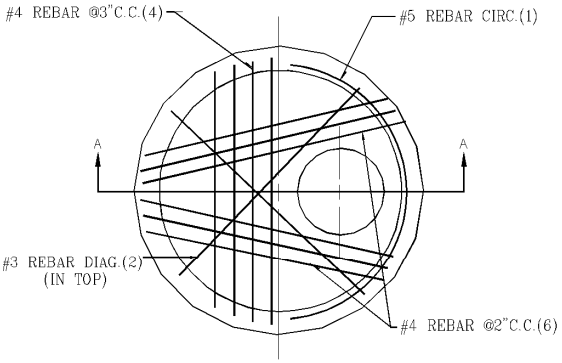
TOP VIEW

DIA.	A	B	C	WEIGHT
5'-0"	6'-0"	2'-0"	9"	2,825lbs.
6'-0"	7'-2"	2'-0"	10"	4,500lbs.
8'-0"	9'-6"	2'-0"	10"	8,435lbs.
10'-0"	11'-10"	2'-0"	12"	15,000lbs.
12'-0"	14'-0"	2'-0"	12"	18,600lbs.

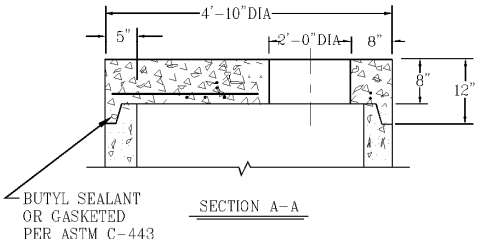
NOTES:
CONCRETE TO CONFORM TO ASTM C-478 STANDARDS
2"MIN. CONCRETE COVER
MEETS OR EXCEEDS ASTM C-478
#5 REBAR 12" C.C EA. WAY UNLESS NOTED



SECTION A-A



TOP VIEW



SECTION A-A

12"THK. TOP SLAB

STANDARD 4'

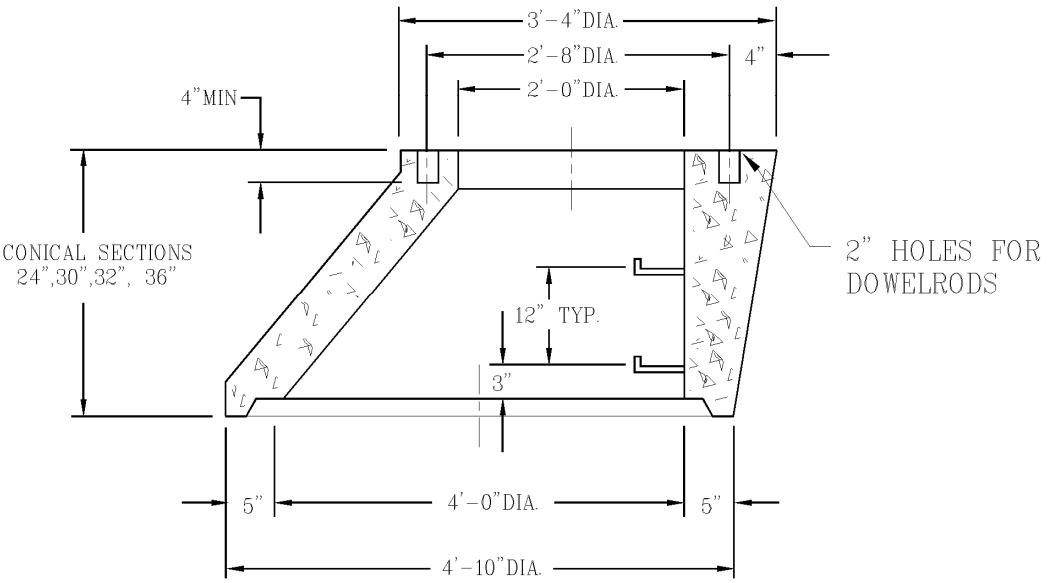
NOTES:
CONCRETE TO CONFORM TO ASTM C-478 STANDARDS
2"MIN. CONCRETE COVER
MEETS OR EXCEEDS ASTM C-478
WEIGHT: 7"-1,500lbs.
8"-1,500lbs.
12"-1,660lbs.

OWENSBORO METROPOLITAN
PUBLIC IMPROVEMENT SPECIFICATIONS

CHAPTER 5
SANITARY SEWERS

4'-12' DIAMETER FLAT TOP SLABS
DETAIL SHEET

EXHIBIT NO. 5-7
NOT TO SCALE

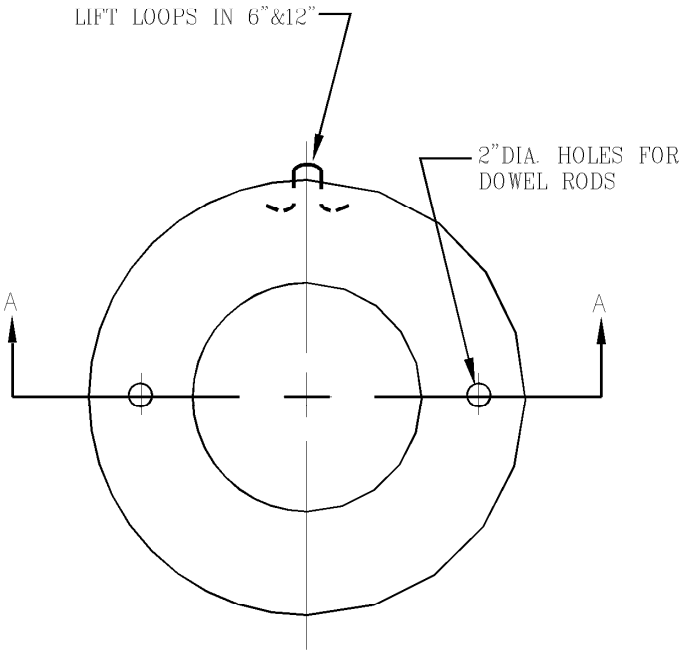


SIDE VIEW SECTION

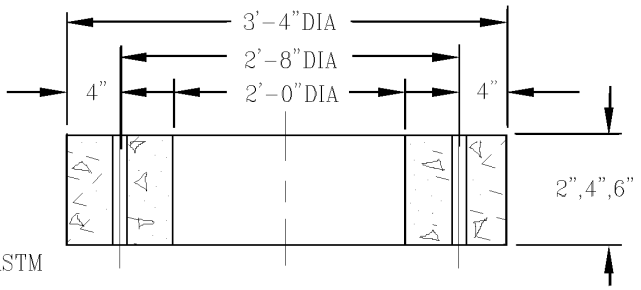
WEIGHT: 24" – 1,525lbs.
30" – 1,860lbs.
32" – 1,985lbs.
36" – 2,440lbs.

NOTES:
CONCRETE TO CONFORM TO ASTM C-478 STANDARDS

OWENSBORO METROPOLITAN PUBLIC IMPROVEMENT SPECIFICATIONS
CHAPTER 5 SANITARY SEWERS 4'-0" DIA. ECCENTRIC CONICALS DETAIL SHEET
EXHIBIT NO. 5-8 NOT TO SCALE



TOP VIEW



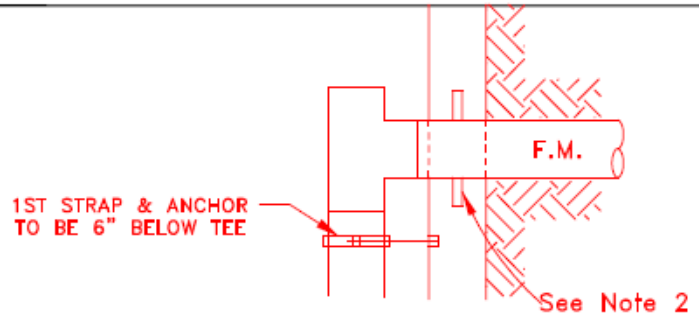
SECTION A-A

NOTES:
CONCRETE TO CONFORM TO ASTM C-478 STANDARDS
MEETS OR EXCEEDS ASTM-C478
STEP NOT REQD. FOR 3"-6"
GRADE RINGS
WEIGHT: 3"-210lbs.
6"-420lbs.
12"-840lbs.

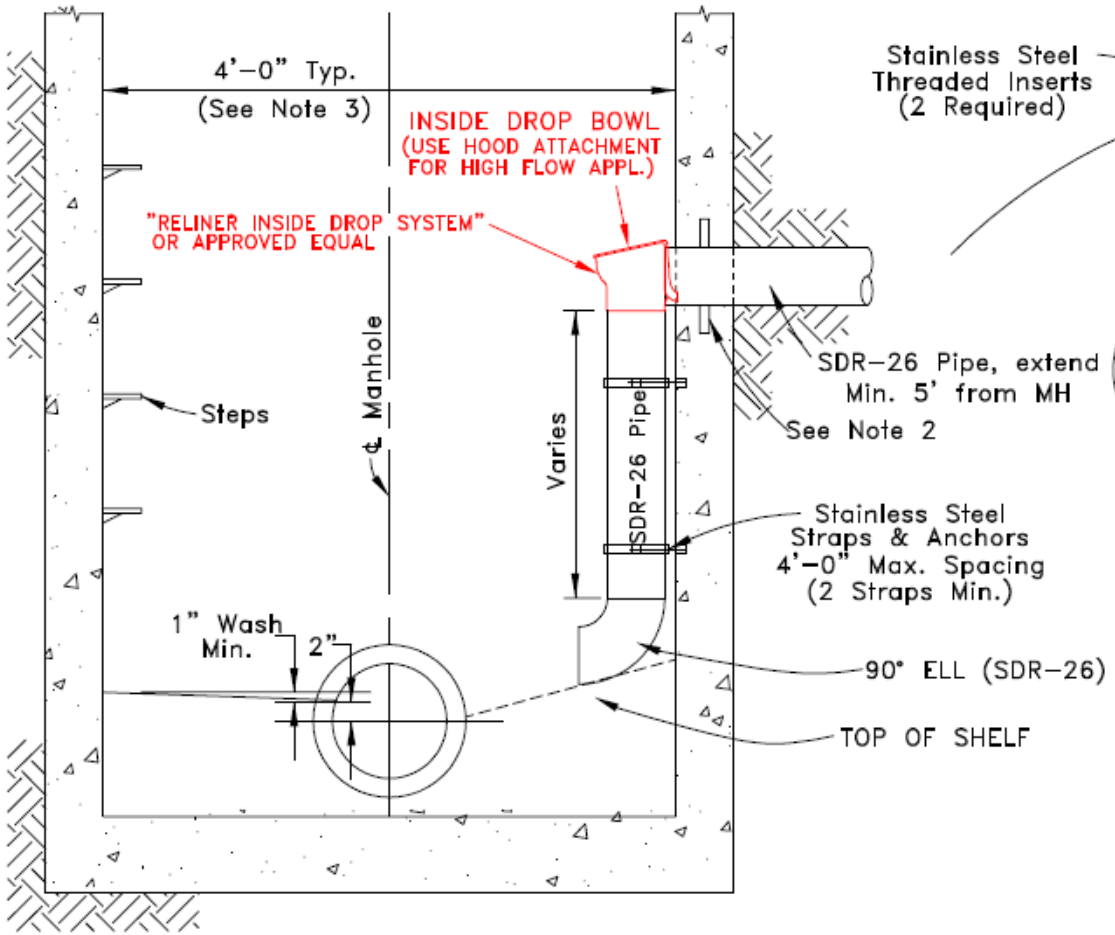
OWENSBORO METROPOLITAN PUBLIC IMPROVEMENT SPECIFICATIONS
CHAPTER 5 SANITARY SEWERS GRADE RING DETAIL SHEET
EXHIBIT NO. 5-9 NOT TO SCALE

NOTES:

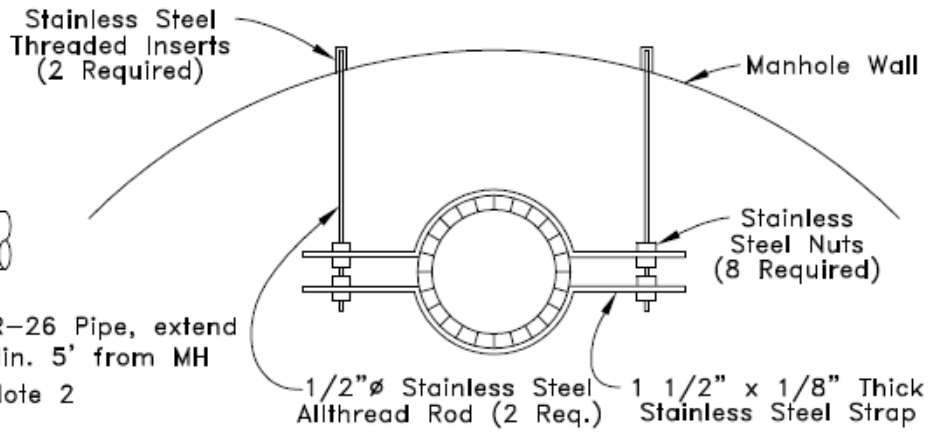
1. Sewer pipe connection to existing precast manhole shall be designed to enter at the top of the shelf, unless otherwise approved by R.W.R.A.
2. Sewer pipe connection to precast manhole with Positive Seal Gasketing System (A.S.T.M. C–923). Gasket shall be as manufactured by A–lok or Kor–N–Seal Manhole gasket pipe connectors or approved equal for sanitary sewers.
3. The minimum diameter will be 4'–0" for an 8–inch sewer. For pipe sizes greater than 8–inches, the manhole diameter shall be approved by RWRA.
4. For drops less than 24", the shelf shall be modified to form a taper to the influent flowline with a non–shrink grout.



FORCE MAIN DROP ALTERNATE
(DROP PIPE AND FITTINGS TO = F.M.)



LOW FLOW DROP DETAIL



GRAVITY SEWER DROP CHART

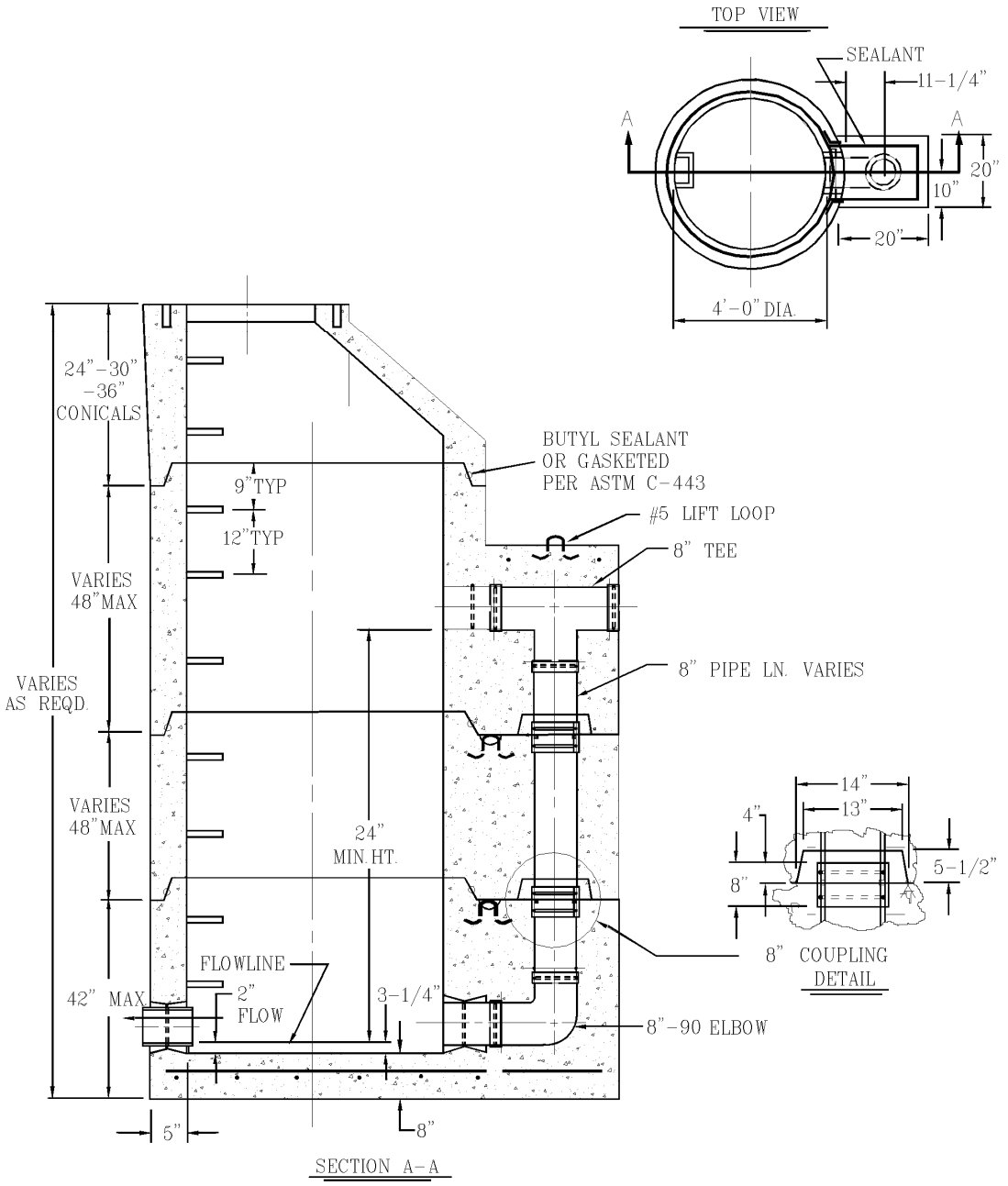
SEWER SIZE	DROP SIZE	MIN MH DIA.
UP TO 10"	8"	4'
12" TO 18"	10"	4'
18" TO 30"	18"	5'

OWENSBORO METROPOLITAN
PUBLIC IMPROVEMENT SPECIFICATIONS

CHAPTER 5
SANITARY SEWERS

INTERNAL DROP
MANHOLE DETAIL

EXHIBIT NO. 5–10
NOT TO SCALE



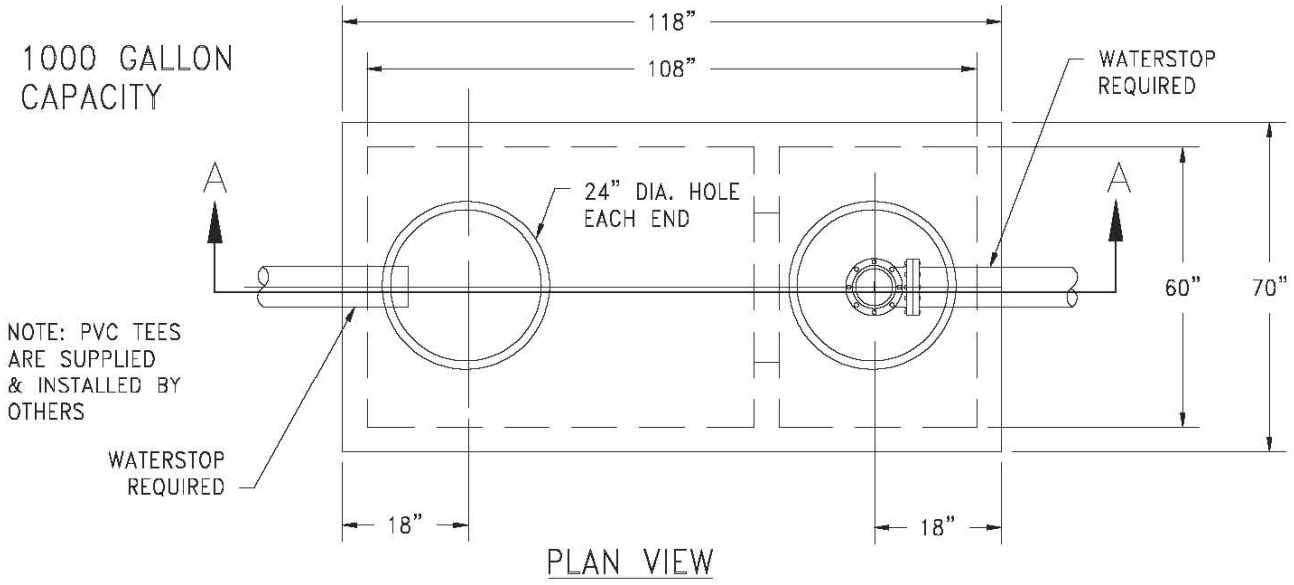
NOTES:
CONCRETE TO CONFORM TO ASTM C-478 STANDARDS
2"MIN. CONCRETE COVER
RESILIENT CONNECTORS MEET ASTM C-923
MEETS OR EXCEEDS ASTM C-478
GASKET, ANGLE & FALL PER PLAN
1" DIA. CONSEAL TO BE ADDED BETWEEN JOINTS OF PRECAST DROP & TIE INTO BARREL SEALANT
WEIGHT: BASE-VARIES
BARREL-3,599lbs.

OWENSBORO METROPOLITAN
PUBLIC IMPROVEMENT SPECIFICATIONS

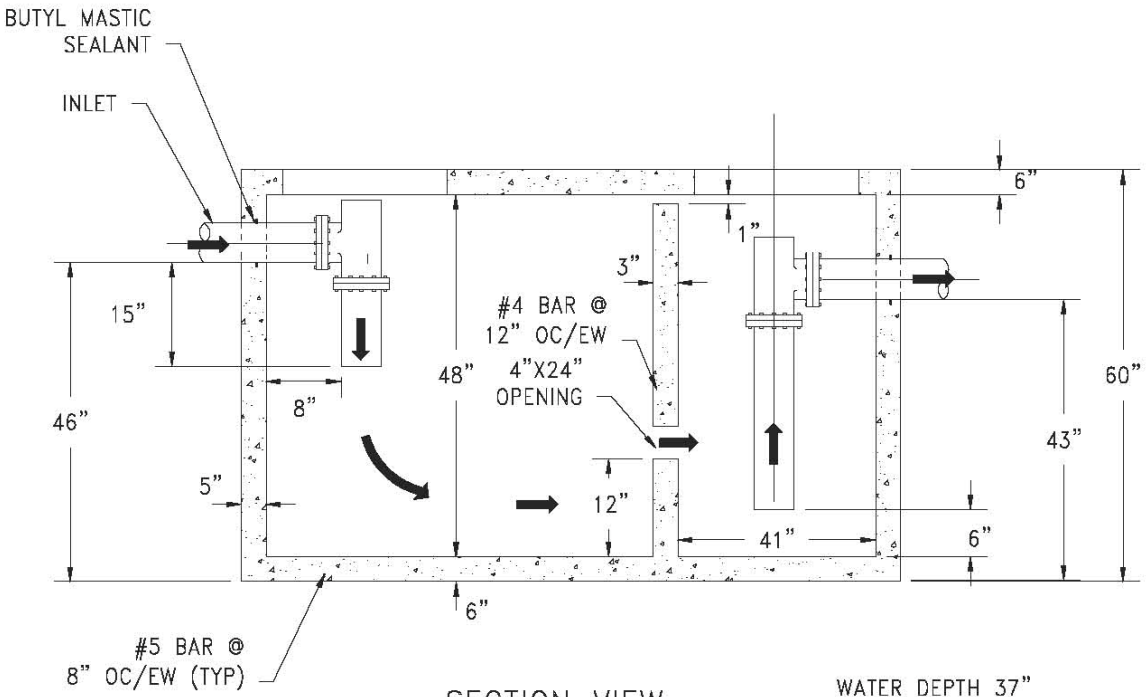
CHAPTER 5
SANITARY SEWERS

4'-0" DIA. W/ PRECAST DROP
DETAIL SHEET

EXHIBIT NO. 5-11
NOT TO SCALE



PLAN VIEW



SECTION VIEW

WATER DEPTH 37"

PIPE SEAL CAST IN
AT INLET & OUTLET

SPECIFICATIONS

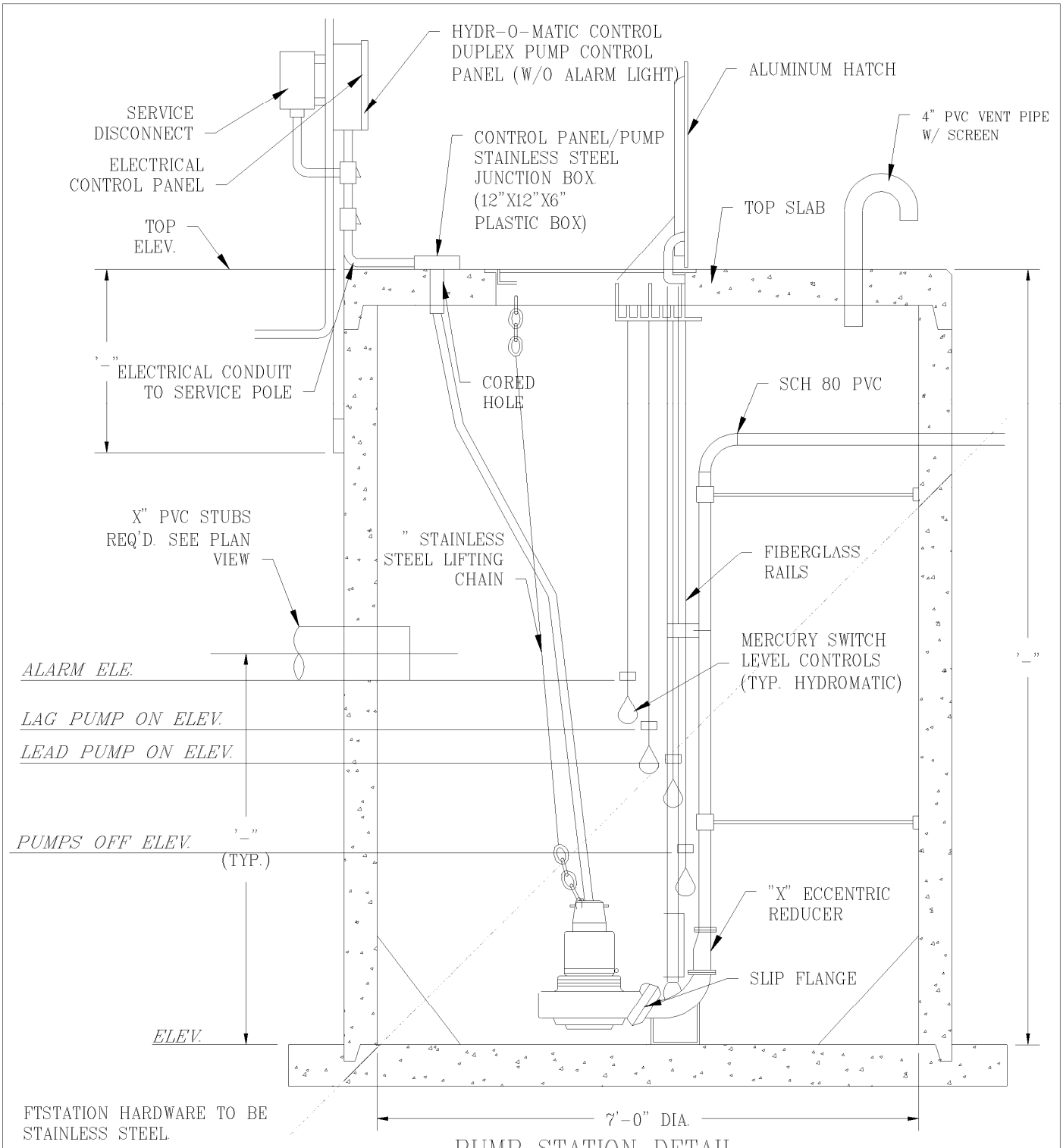
CONCRETE TO CONFORM TO ASTM C-478 STANDARDS
REINFORCEMENT - ASTM A-615 & ASTM A-615M (LATEST REVISION). GRADE 60
DESIGN LOAD - AASHTO HS25 & AASHTO HS25M (LATEST REVISION)
APPROX. WEIGHT - BASE 11,200#; LID4,100#
HOLE SIZE - LENGTH 10'-10", WIDTH 6'-10", DEPTH 6'-0"
PIPE CONNECT. OPT. - GROUT HOLES. OTHER GASKETS
OTHER OPTIONS - RISERS TO GRADE. CAST IRON. PETROLEUM RESISTANT MASTIC

OWENSBORO METROPOLITAN
PUBLIC IMPROVEMENT SPECIFICATIONS

CHAPTER 5
SANITARY SEWERS

GREASE INTERCEPTOR/
OIL SEPARATOR
DETAIL

EXHIBIT NO. 5-12
NOT TO SCALE



PUMP STATION DETAIL

4. PROVIDE FLASHING RED LIGHT FOR UNAUTHORIZED ENTRY ALARM

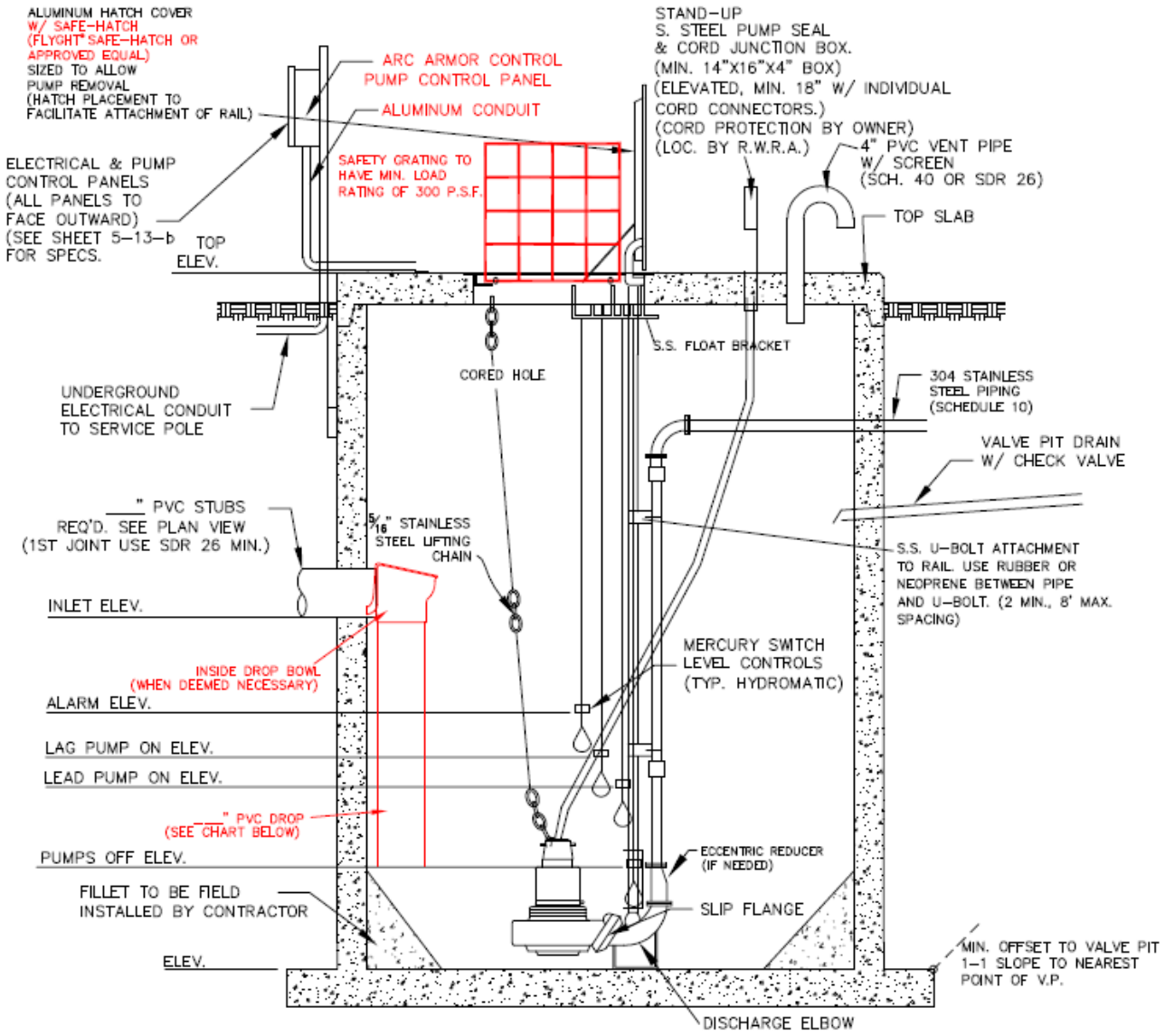
OWENSBORO METROPOLITAN
PUBLIC IMPROVEMENT SPECIFICATIONS

CHAPTER 5
SANITARY SEWERS

PUMP STATION
DETAIL

EXHIBIT NO. 5-13
NOT TO SCALE

REVISED 11-2013



PUMP STATION DETAIL
NOT TO SCALE

PUMP SPECIFICATIONS

PUMPS (RWRA STAND.)
PUMP MANUF. HYDR-O-MATIC
PUMP MODEL
PUMP SIZE
DESIGN GPM
DESIGN TDH IN FEET

MOTORS
HORSEPOWER
RPM
VOLTAGE
PHASE
HERTZ

FORCE MAIN
SIZE
TYPE

SUCTION EL. =
DISCHARGE EL. =

SEWER SIZE	DROP SIZE
UP TO 10"	8"
12" TO 18"	10"
18" TO 30"	18"

NOTES:

1. L.S. AREA TO BE ENCLOSED BY FENCE. (SIZE, TYPE, HEIGHT SPEC BY RWRA)

2. ALL PRECAST LIFT STATIONS TO HAVE INORGANIC COPOLYMER WATERPROOFING ADMIXTURE "IPANEX" OR "XYPEX" AS PER OWENSBORO PUBLIC IMPROVEMENT SPECS SECTION 5.13.7 METHOD #1

3. ALL LIFTSTATION HARDWARE TO BE 304 STAINLESS STEEL (UNLESS NOTED OTHERWISE)

4. RAIL SYSTEM TO BE FIBERGLASS OR STAINLESS STEEL SIZED ACCORDING TO PUMP SIZE (6" OR LESS) ANY VARIANCE TO BE APPROVED BY R.W.R.A.

5. CONTRACTOR SHALL PROVIDE ONE ESSEX (IF AVAILABLE) TELEPHONE SERVICE LINE INTO VOICE TELEMETRY CONTROL PANEL. (IF NO A.T. & T. ESSEX SERVICE AVAILABLE, SENSAPHONE / TELULAR BOX SHALL BE 18" X 18", 6" FIBERGLASS W/ HINGED DOOR.)

6. CONTRACTOR TO PROVIDE SYNTHESIZED VOICE TELEPHONE TELEMETRY ALARM SYSTEM (SENSAPHONE 1400 OR EQUAL). ALARM ENCLOSURE TO BE IN A SEPARATE LOCKABLE, WEATHERPROOF STAINLESS STEEL ENCLOSURE.

7. DEVELOPER/ENGINEER MUST CONTACT R.W.R.A. TO RECEIVE "CAD" DRAWINGS

OWENSBORO METROPOLITAN
PUBLIC IMPROVEMENT SPECIFICATIONS

CHAPTER 5
SANITARY SEWERS

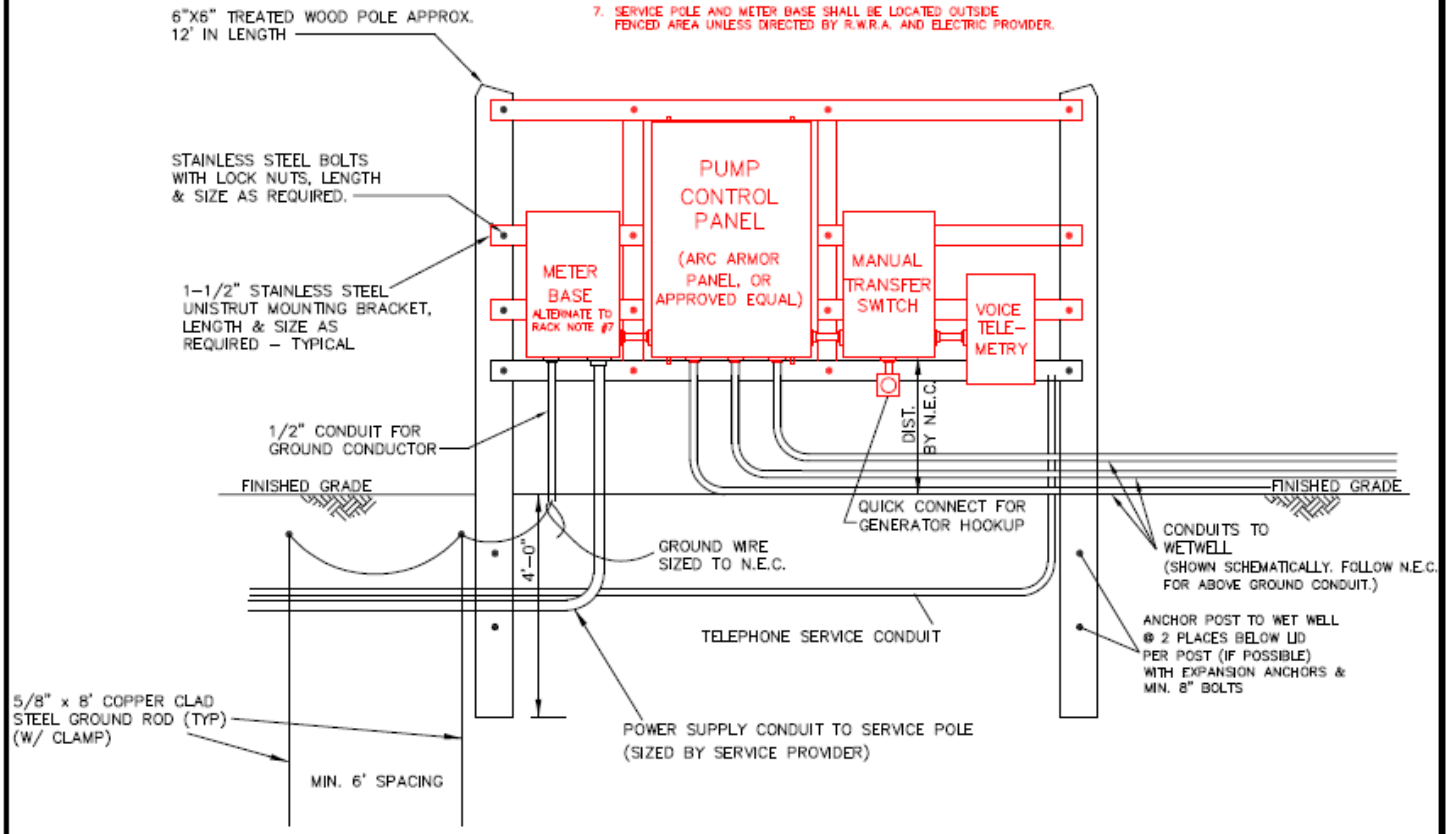
PUMP STATION
DETAIL SHEET 1

EXHIBIT NO. 5-13-a
NOT TO SCALE

REVISED 11-2013

SERVICE SWITCH RACK NOTES:

1. MAINTAIN CODE REQUIRED SPACING (MINIMUM OR GREATER) FOR ALL RACK MOUNTED COMPONENTS.
2. GRIND SMOOTH THE CUT EDGES OF ALL STRUCTURAL MEMBERS.
3. ALL MOUNTING HARDWARE SHALL BE STAINLESS STEEL.
4. ALL EQUIPMENT TO BE BOLTED TO RACK WITH 1/4" DIA. STAINLESS STEEL BOLTS WITH STAINLESS STEEL LOCK WASHERS. DAMAGE ALL THREADS SO NUTS CANNOT BE REMOVED.
5. ALL BOXES AND PANELS NOT MOUNTED TO WETWELL, SHALL BE MOUNTED TO A STAINLESS STEEL STRUCTURAL SUPPORT MEMBER.
6. ALL RIGID CONDUIT SHALL BE ALUMINUM, NO PVC ACCEPTED
7. SERVICE POLE AND METER BASE SHALL BE LOCATED OUTSIDE FENCED AREA UNLESS DIRECTED BY R.W.R.A. AND ELECTRIC PROVIDER.



SERVICE SWITCH RACK ARRANGEMENT

ALL MAIN POWER SUPPLY SHALL BE UNDERGROUND
WITHIN PROPOSED LIFT STATION FENCE AREA

GENERAL NOTES:

1. PRIMARY ELECTRIC SERVICE PREFERENCE IS TO BE A.) 460 VOLT, 3 PHASE; B.) 230 VOLT, 3 PHASE; OR C.) 230 VOLT, 1 PHASE, IF APPROVED BY R.W.R.A. TO BE PROVIDED BY DEVELOPER. (PHASE CONVERTERS OR VFD's TO ACHIEVE 3 PHASE IF APPROVED BY R.W.R.A.)

2. MOUNT PUMP STATION CONTROL PANEL AND ELECTRICAL EQUIPMENT ON TWO PRESSURE TREATED 6"X6" WOODEN POSTS WITH STAINLESS STEEL UNISTRUT.

3. CONTRACTOR SHALL PROVIDE ONE ESSX (IF AVAILABLE) TELEPHONE SERVICE LINE INTO VOICE TELEMETRY BOX.

4. CONTRACTOR TO INSTALL GENERATOR TRANSFER SWITCH (RONK 7800-6 OR EQUAL) BETWEEN MAIN DISCONNECT AND CONTROL BOX

5. CONTRACTOR TO INSTALL GENERATOR RECEPTACLE (HUBBELL OR PS 4100-R9W- RECEPTACLE W/ BACK BOX BB-001 (OR EQUAL) FOR 208 OR 240 VOLT INSTALLATIONS. (R4100-R7W FOR 480 VOLT)

6. CONTRACTOR TO PROVIDE SYNTHESIZED VOICE TELEPHONE TELEMETRY ALARM SYSTEM (SENSAPHONE 1400 OR EQUAL). ALARM SYSTEM TO BE IN A SEPARATE LOCKABLE, WEATHER-PROOF, NON-METALLIC ENCLOSURE.

7. ALL CONTROL PANELS TO FACE OUTWARD, AND HAVE 3' CLEARANCE TO ANY OBSTRUCTION, INCLUDING FENCING. ALL CONTROL PANELS EXCEPT VOICE TELEMETRY, SHALL BE LOCKABLE, WEATHERPROOF, STAINLESS STEEL ENCLOSURES. (PADLOCK PROVIDED BY R.W.R.A.) ARC ARMOR BOX TO HAVE SIDE WITH MAIN BREAKER/STARTERS FACING OUTWARD. ARC ARMOR PANEL BOX TO MEET MANUF. SPECS, APPROVED BY R.W.R.A.

8. WET WELL ELECTRIC JUNCTION BOX MOUNTED VERTICALLY APPROX. 18" ABOVE WELL SLAB OPENING ON TWO STAINLESS STEEL STRUT BRACKETS; PUMP AND FLOAT CORDS TO ENTER APPROPRIATELY SIZED WEATHERPROOF CORD CONNECTORS WITH STRAIN RELIEFS.

9. ALL DRAWINGS AND SPECIFICATIONS ARE TO BE REVIEWED BY RWRA AND ARE SUBJECT TO CHANGE BASED ON CHANGES TO REGULATORY CODE OR TECHNOLOGY.

CONTROL PANEL TO INCLUDE:

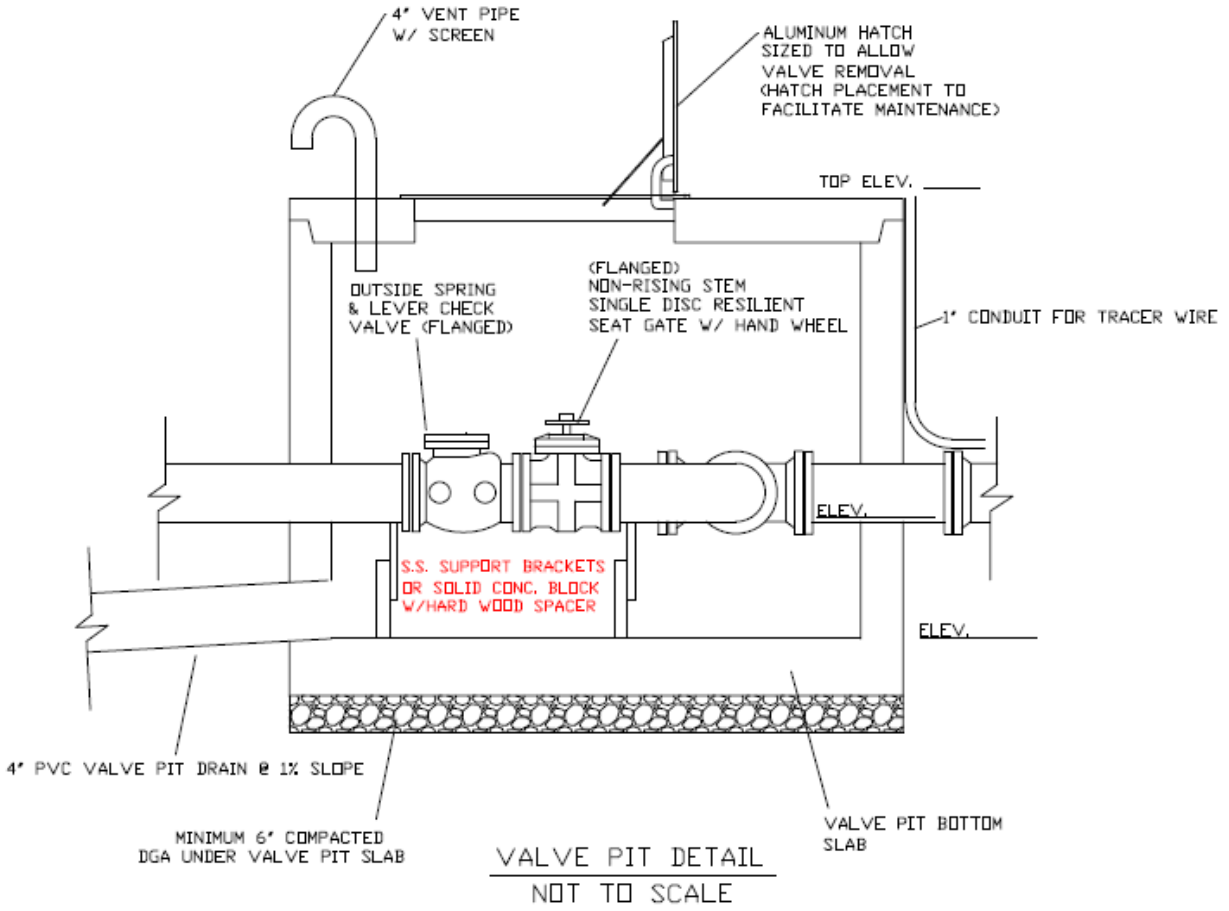
- NEMA TYPE 4X STAINLESS STEEL ENCLOSURE
- BACK PANEL AND INNER DOOR
- INCOMING POWER BLOCK
- MOTOR AND CONTROL CIRCUIT BREAKERS
- NEMA RATED MOTOR STARTERS W/OVERLOAD HEATERS
- CONTROL VOLTAGE TRANSFORMER
- CONTROL CIRCUIT FUSE
- DUPLEX ALTERNATING RELAY W/LEAD SELECT SWITCH
- LAG/OVERLOAD/OVERTEMPERATURE PUMP CIRCUITRY
- HAND-OFF-AUTO SWITCHES
- PUMP RUN LIGHTS
- SEAL FAIL LIGHTS
- CONTROL AND FAULT RELAYS AS REQUIRED
- UL 508 LISTED
- TERMINAL BLOCKS AND GROUND LUGS AS REQUIRED
- AUX. DRY HIGH LEVEL AND SEAL FAIL TELEMETRY CONTACTS
- ALL OPERATING CONTROLS MUST BE MOUNTED ON AND BE OPERABLE FROM METAL INNER DOOR

OWENSBORO METROPOLITAN
PUBLIC IMPROVEMENT SPECIFICATIONS

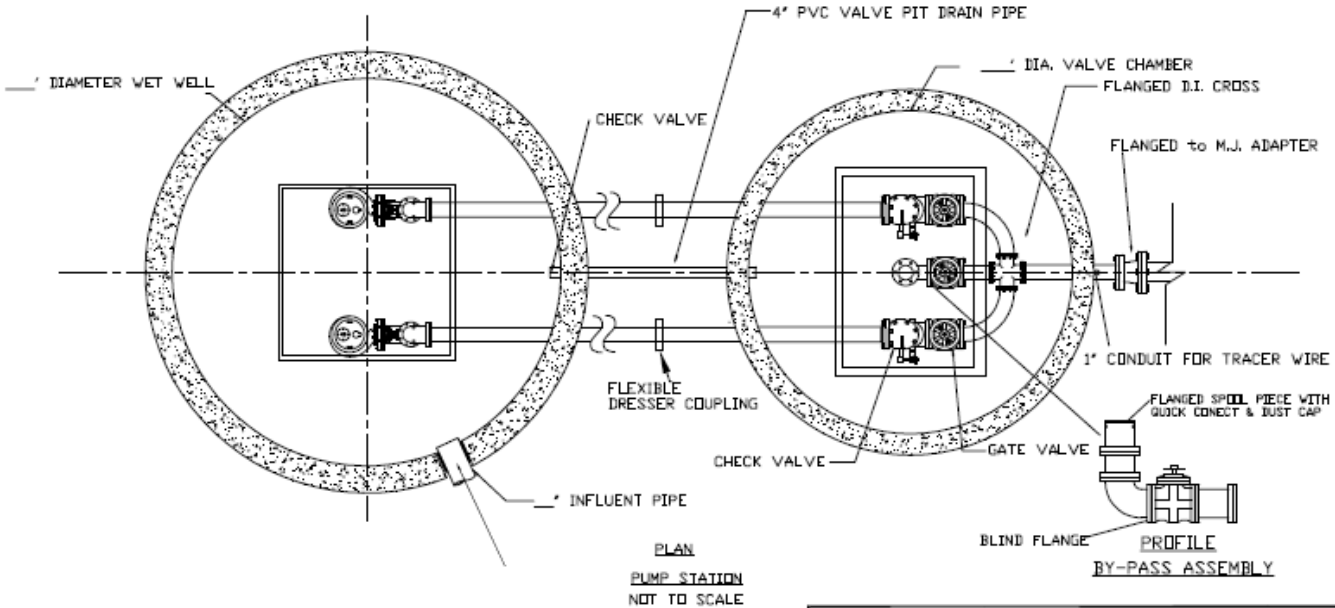
CHAPTER 5
SANITARY SEWERS

PUMP STATION
DETAIL SHEET 2

EXHIBIT NO. 5-13-b
NOT TO SCALE



VALVE PIT DETAIL
NOT TO SCALE



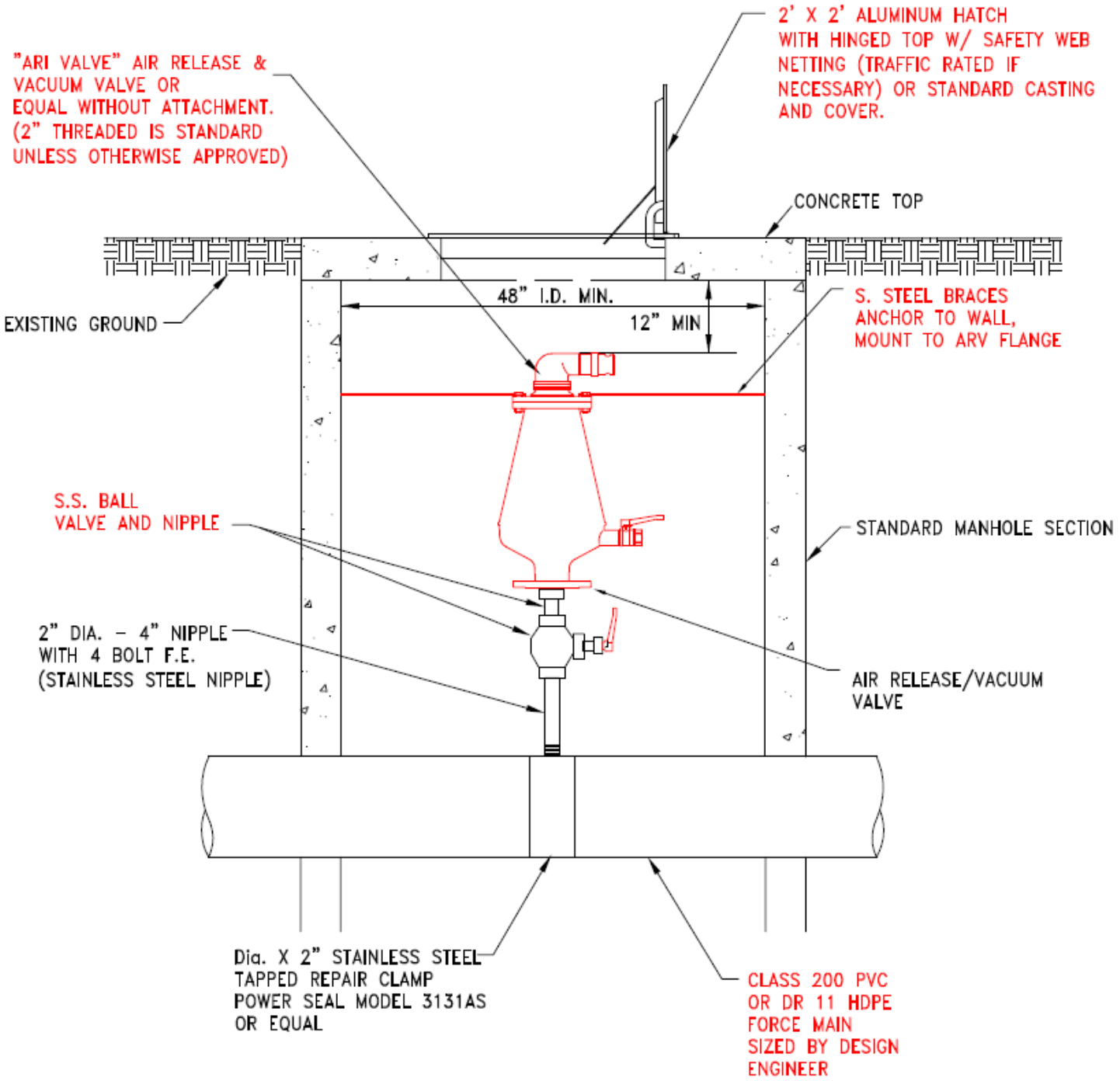
ALL PIPING TO BE S. STEEL OR FLANGED D.I.

OWENSBORO METROPOLITAN
PUBLIC IMPROVEMENT SPECIFICATIONS

CHAPTER 5
SANITARY SEWERS

PUMP STATION
DETAIL SHEET 2

EXHIBIT NO. 5-14
NOT TO SCALE



AIR RELEASE PIT DETAIL

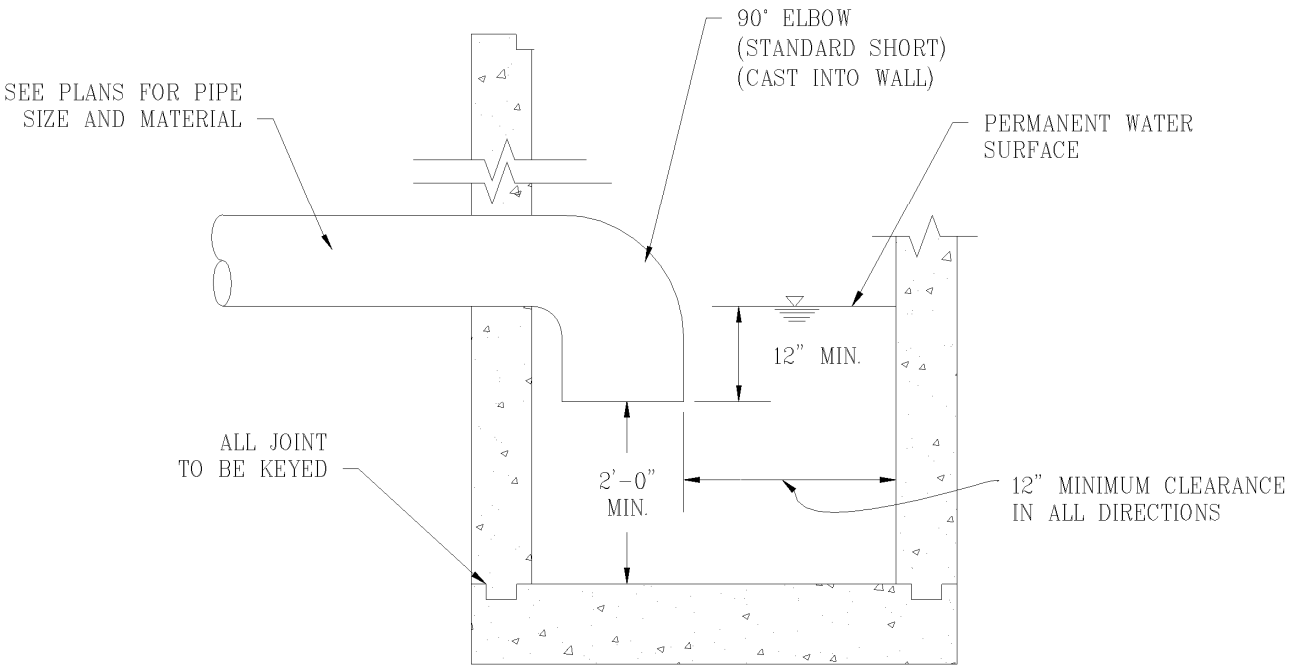
NOTE:
ALL FITTINGS AND HARDWARE TO BE 304 STAINLESS STEEL (S.S.)

OWENSBORO METROPOLITAN
PUBLIC IMPROVEMENT SPECIFICATIONS

CHAPTER 5
SANITARY SEWERS

AIR RELEASE
PIT DETAIL

EXHIBIT NO. 5-15
NOT TO SCALE



SECTION VIEW

OWENSBORO METROPOLITAN PUBLIC IMPROVEMENT SPECIFICATIONS
CHAPTER 5 SANITARY SEWERS TRAPPED INLET/MANHOLE DETAIL SHEET
EXHIBIT NO. 5-16 NOT TO SCALE

Exhibit 5-17 Gravity sewer air test standard

TIME REQUIRED FOR A 0.5 PSIG PRESSURE DROP FOR SIZE AND LENGTH OF PIPE INDICATED FOR Q = 0.0015*

1 Pipe Diameter (in)	2 Minimum Time (min:sec)	3 Length of Min. time (ft)	4 Time for Longer Length (sec)	Specified Minimum for Length (L) Shown (min:sec)							
				100ft	150ft	200ft	250ft	300ft	350ft	400ft	450ft
4	1:53	597	.190L	1:53	1:53	1:53	1:53	1:53	1:53	1:53	1:53
6	2:50	398	.427L	2:50	2:50	2:50	2:50	2:50	2:50	2:51	3:12
8	3:47	298	.760L	3:47	3:47	3:47	3:47	3:48	4:26	5:04	5:42
10	4:43	239	1.187L	4:43	4:43	4:43	4:57	5:56	6:55	7:54	8:54
12	5:40	199	1.709L	5:40	5:40	5:42	7:08	8:33	9:58	11:24	12:50
14	7:05	159	2.671L	7:05	7:05	8:54	11:08	13:21	15:35	17:48	20:02
18	8:30	133	3.846L	8:30	9:37	12:49	16:01	19:14	22:26	25:38	28:51
21	9:55	114	5.235L	9:55	13:05	17:27	21:49	26:11	30:32	34:54	39:16
24	11:20	99	6.837L	11:24	17:57	22:48	28:30	34:11	39:53	45:35	51:17
27	12:45	88	8.653L	14:25	21:38	28:51	36:04	43:16	50:30	57:42	64:54
30	14:10	80	10.683L	17:48	26:43	35:37	44:31	53:25	62:19	71:13	80:07
33	15:35	72	12.926L	21:33	32:19	43:56	53:52	64:38	75:24	86:10	96:57
36	17:00	66	15.384L	25:39	38:28	51:17	64:06	76:55	89:44	102:34	115:23
42	20:14	57	20.942L	34:54	52:21	69:49	87:15	104:42	122:10	139:37	157:04
48	23:07	50	27.352L	45:35	68:23	91:11	113:58	136:46	159:33	182:21	205:09

* Q is the allowable leakage rate in cu.ft/min/ft sq of inside surface area of pipe.

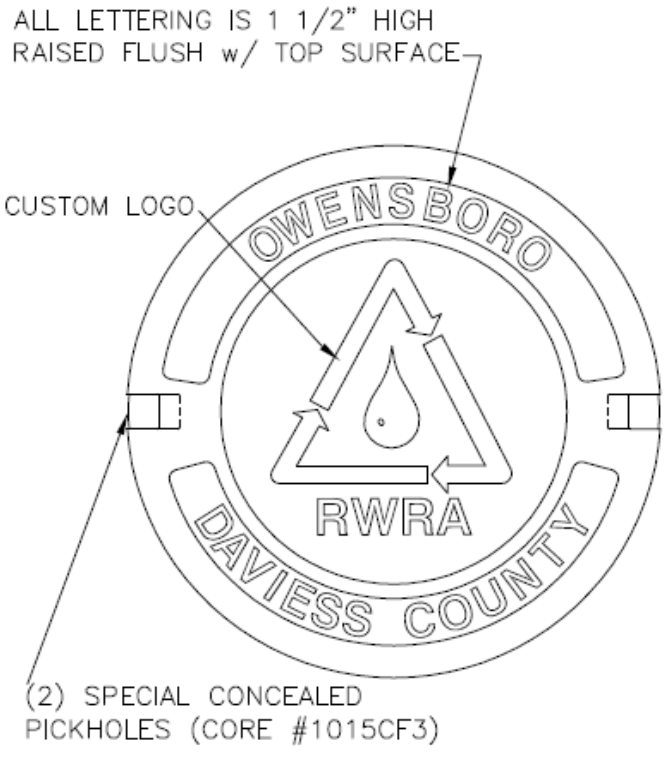
Table is generated from Uni-Bell PVC Pipe Association Handbook of PVC PIPE

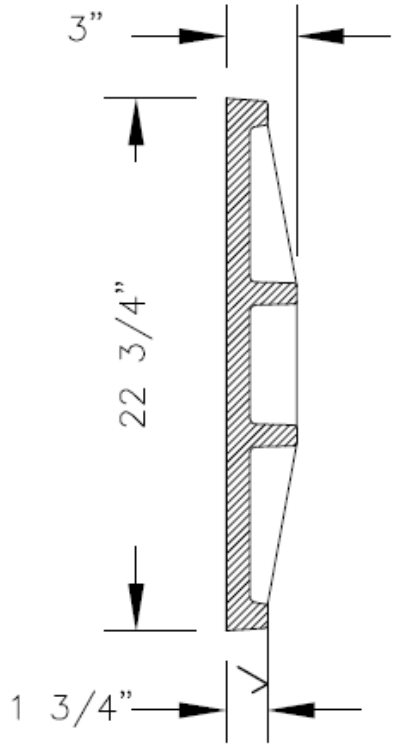
OWENSBORO METROPOLITAN
PUBLIC IMPROVEMENT SPECIFICATIONS

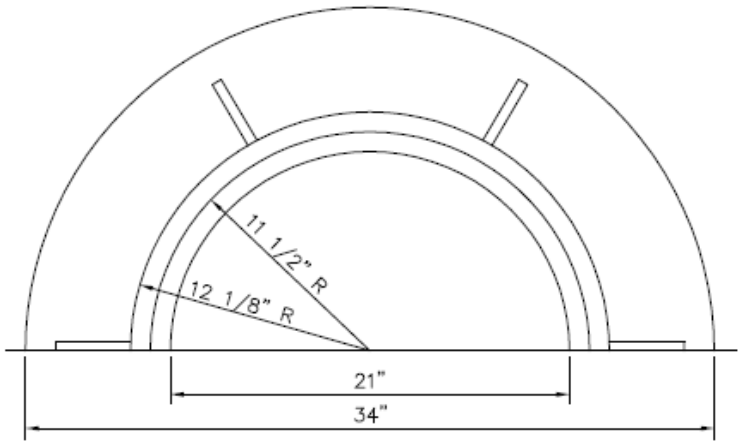
CHAPTER 5
SANITARY SEWERS

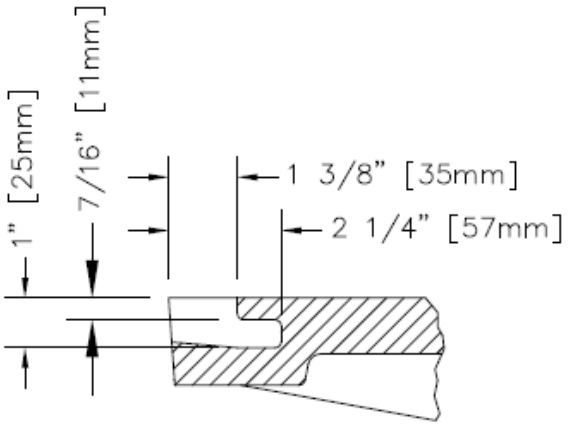
GRAVITY SEWER
AIR TEST STANDARD

EXHIBIT NO. 5-17
NOT TO SCALE

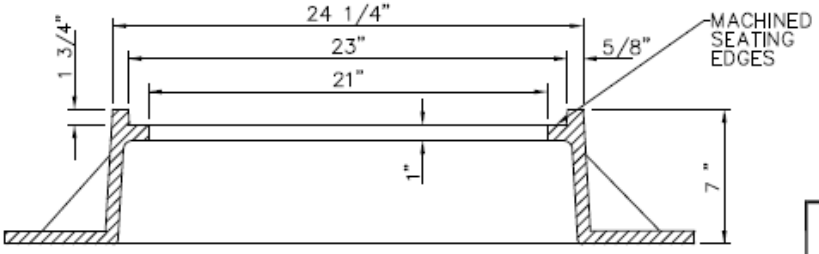








CONCEALED PICKHOLE DETAIL
NOT TO SCALE



STANDARD CIRCULAR MANHOLE FRAME
NOT TO SCALE

MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 35B
FINISH: NO PAINT
WEIGHT: 149# WAS NF-1772T73

NEENAH R-1772 (OR EQUAL) LID w/LOGO
LTRD. "OWENSBORO - DAVIESS COUNTY"

ALL NEW

OWENSBORO METROPOLITAN
PUBLIC IMPROVEMENT SPECIFICATIONS

CHAPTER 5
SANITARY SEWERS

MANHOLE CASTING LID & FRAME
DETAIL SHEET

EXHIBIT NO. 5-18
NOT TO SCALE

END OF SECTION

N O T I C E

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS
NATIONWIDE PERMIT AUTHORIZATION
KENTUCKY DIVISION OF WATER 401 WQC

PROJECT: Butler County, Item No. 3-8503
US 231 Widening from West Ohio St. to US 70

The Section 404 & 401 activities for this project have been previously permitted under the authority of the Department of the Army Nationwide Permit No. 14 "Linear Transportation Projects" & Division of Water General Water Quality Certification. In order for these authorizations to be valid, the attached conditions must be followed. The contractor shall post a copy of this Nationwide Permit & General WQC in a conspicuous location at the project site for the duration of construction and comply with the general conditions as required.

Station 109+11 to Station 111+68 See sheet R5	Replace an existing 8'x6' reinforced concrete box culvert (RCBC) with a longer 8'x6' RCBC including channel lining, entrance flume, and a exit energy dissipating SAF headwall. The **intermittent** stream will be impacted with the extended length of the box culvert headwalls and channel lining to prevent future scour problems. The estimated area of impact is **225.5 linear feet** and **0.02 acres**. The drainage area at the bridge is **160 acres**. **Lat 37.229647, Long -86.690238**

This project involves work near and/or within Jurisdictional Waters of the United States as defined by the United States Army Corps of Engineers and therefore requires a Nationwide 14 General 404 Permit. The Division of Water certified this General Permit with several conditions (See attached). One that should be brought to your attention is regarding the use of heavy equipment in the stream channel. If there is need to cross the stream channel with heavy equipment or conduct work from within the stream channel a working platform or temporary crossing is authorized. This should be constructed with clean rock and sufficient pipe to allow stream flow to continue unimpeded (see attached typical drawing).

In order for this authorization to be valid, the attached conditions must be followed. The contractor shall post a copy of this Nationwide Approval in a conspicuous location at the project site for the duration of construction and comply with the general conditions as required.

To more readily expedite construction, the contractor may elect to alter the design or perform the work in a manner different from what was originally proposed and specified. Prior to commencing such alternative work, the contractor shall obtain **written** permission from the Division of Construction and the Division of Environmental Analysis. If such changes necessitate further permitting then the contractor will be responsible for applying to the Army Corps of Engineers and the Kentucky Division of Water (KDOW). A copy of any request to the Corps of Engineers or the KDOW to alter this proposal and subsequent responses shall be forwarded to the Division of Environmental Analysis, DA Permit Coordinator, for office records and for informational purposes.

STEVEN L. BESHEAR
GOVERNOR

LEONARD K. PETERS
SECRETARY

ENERGY AND ENVIRONMENTAL PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER
200 FAIR OAKS LANE
FRANKFORT, KENTUCKY 40601
www.kentucky.gov

General Certification--Nationwide Permit # 14
Linear Transportation Projects

This General Certification is issued March 19, 2012, in conformity with the requirements of Section 401 of the Clean Water Act of 1977, as amended (33 U.S.C. §1341), as well as Kentucky Statute KRS 224.16-050.

For this and all nationwide permits, the definition of surface water is as per 401 KAR 10:001 Chapter 10, Section 1(80): Surface Waters means those waters having well-defined banks and beds, either constantly or intermittently flowing; lakes and impounded waters; marshes and wetlands; and any subterranean waters flowing in well-defined channels and having a demonstrable hydrologic connection with the surface. Lagoons used for waste treatment and effluent ditches that are situated on property owned, leased, or under valid easement by a permitted discharger are not considered to be surface waters of the commonwealth.

Agricultural operations, as defined by KRS 224.71-100(1) conducting activities pursuant to KRS 224.71-100 (3), (4), (5), (6), or 10 are deemed to have certification if they are implementing an Agriculture Water Quality Plan pursuant to KRS 224.71-145.

For all other operations, the Commonwealth of Kentucky hereby certifies under Section 401 of the Clean Water Act (CWA) that it has reasonable assurances that applicable water quality standards under Kentucky Administrative Regulations Title 401, Chapter 10, established pursuant to Sections 301, 302, 304, 306 and 307 of the CWA, will not be violated for the activity covered under NATIONWIDE PERMIT 14, namely Linear Transportation Projects, provided that the following conditions are met:

1. The activity will not occur within surface waters of the Commonwealth identified by the Kentucky Division of Water as Outstanding State or National Resource Water, Cold Water Aquatic Habitat, or Exceptional Waters.

2. The activity will not occur within surface waters of the Commonwealth identified as perpetually-protected (e.g. deed restriction, conservation easement) mitigation sites.

3. The activity will impact less than 1/2 acre of wetland/marsh.

4. The activity will impact less than 300 linear feet of surface waters of the Commonwealth. Stream realignment greater than 100 feet is not covered under this general water quality certification.

5. For a single and complete linear transportation project, the cumulative length of impacts less than 300 linear feet of surface waters within each Hydrologic Unit Code (HUC) 14 watershed will not exceed 500 linear feet.

6. Stream impacts covered under this General Water Quality Certification and undertaken by those persons defined as an agricultural operation under the Agricultural Water Quality Act must be completed in compliance with the Kentucky Agricultural Water Quality Plan (KWQP).

7. The Kentucky Division of Water may require submission of a formal application for an individual certification for any project if the project has been determined to likely have a significant adverse effect upon water quality or degrade the waters of the Commonwealth so that existing uses of the water body or downstream waters are precluded.

8. Activities that do not meet the conditions of this General Water Quality Certification require an Individual Section 401 Water Quality Certification.

9. Activities qualifying for coverage under this General Water Quality Certification are subject to the following conditions:

    - Erosion and sedimentation pollution control plans and Best Management Practices must be designed, installed, and maintained in effective operating condition at all times during construction activities so that violations of state water quality standards do not occur (401 KAR 10:031 Section 2 and KRS 224.70-100).
    - Sediment and erosion control measures, such as check-dams constructed of any material, silt fencing, hay bales, etc., shall not be placed within surface waters of the Commonwealth, either temporarily or permanently, without prior approval by the Kentucky Division of Water's Water Quality Certification Section. If placement of sediment and erosion control measures in surface waters is unavoidable, design and placement of temporary erosion control measures shall not be conducted in such a manner that may result in instability of streams that are adjacent to, upstream, or downstream of the structures. All sediment and erosion control devices shall be removed and the natural grade restored within the completion timeline of the activities.
    - Measures shall be taken to prevent or control spills of fuels, lubricants, or other toxic materials used in construction from entering the watercourse.
    - Removal of riparian vegetation in the utility line right-of-way shall be limited to that necessary for equipment access.
    - To the maximum extent practicable, all in-stream work under this certification shall be performed under low-flow conditions.

General Certification--Nationwide Permit # 14
Linear Transportation Projects
Page 2

- Heavy equipment, e.g. bulldozers, backhoes, draglines, etc., if required for this project, should not be used or operated within the stream channel. In those instances in which such in-stream work is unavoidable, then it shall be performed in such a manner and duration as to minimize turbidity and disturbance to substrates and bank or riparian vegetation.
- Any fill shall be of such composition that it will not adversely affect the biological, chemical, or physical properties of the receiving waters and/or cause violations of water quality standards. If rip-rap is utilized, it should be of such weight and size that bank stress or slump conditions will not be created because of its placement.
- If there are water supply intakes located downstream that may be affected by increased turbidity and suspended solids, the permittee shall notify the operator when such work will be done.
- Should evidence of stream pollution or jurisdictional wetland impairment and/or violations of water quality standards occur as a result of this activity (either from a spill or other forms of water pollution), the KDOW shall be notified immediately by calling (800) 928-2380.

Non-compliance with the conditions of this general certification or violation of Kentucky state water quality standards may result in civil penalties.

KENTUCKY REGIONAL GENERAL CONDITIONS

These regional conditions are in addition to, but do not supersede, the requirements in the Federal Register (Volume 77 No. 34 of February 21, 2012)

Notifications for all Nationwide Permits (NWPs) shall be in accordance with General Condition No. 31.

1. For activities that would result in a loss of Outstanding State or National Resource Waters (OSNRWs), Exceptional Waters (EWs), Coldwater Aquatic Habitat Waters (CAHs) and waters with Designated Critical Habitat (DCH) under the Endangered Species Act for the NWPs listed below, a Pre-Construction Notification (PCN) will be required to the Corps. The Corps will coordinate with the appropriate resource agencies (see attached list) on these NWPs for impacts to these waters.

   NWP 3 (Maintenance)
   NWP 7 (Outfall Structures and Associated Intake Structures)
   NWP 12 (Utility Line Activities)
   NWP 14 (Linear Transportation Projects)
   NWP 29 (Residential Developments)
   NWP 39 (Commercial and Institutional Developments)
   NWP 40 (Agricultural Activities)
   NWP 41 (Reshaping Existing Drainage Ditches)
   NWP 42 (Recreational Facilities)
   NWP 43 (Stormwater Management Facilities)
   NWP 44 (Mining Activities)
   NWP 51 (Land-Based Renewable Energy Generation Facilities)
   NWP 52 (Water-Based Renewable Energy Generation Pilot Projects)

2. In addition to the notification and agency coordination requirements in the NWPs, for impacts greater than 0.25 acres in all "waters of the U.S." for the NWPs listed below, a PCN will be required to the Corps. The Corps will coordinate with the appropriate resource agencies (see attached list) on these NWPs:

   NWP 3 (Maintenance)
   NWP 7 (Outfall Structures and Associated Intake Structures)
   NWP 12 (Utility Line Activities)
   NWP 14 (Linear Transportation Projects)
   NWP 29 (Residential Developments)
   NWP 39 (Commercial and Institutional Developments)
   NWP 40 (Agricultural Activities)
   NWP 41 (Reshaping Existing Drainage Ditches)
   NWP 42 (Recreational Facilities)
   NWP 43 (Stormwater Management Facilities)
   NWP 44 (Mining Activities)
   NWP 51 (Land-Based Renewable Energy Generation Facilities)
   NWP 52 (Water-Based Renewable Energy Generation Pilot Projects)

3. For activities in all "waters of the U.S." for the NWPs listed below, a PCN will be required to the Corps. The Corps will coordinate with the appropriate resource agencies (see attached list) on these NWPs:

   NWP 21 (Surface Coal Mining Activities)
   NWP 27 (Aquatic Habitat Restoration, Establishment & Enhancement Activities)
   NWP 49 (Coal Remining Activities)
   NWP 50 (Underground Coal Mining Activities)

4. Nationwide Permit No. 14 – Linear Transportation Projects.

   (a) Activities in Section 10 navigable waters will require a PCN to the Corps.

   (b) New public road alignments or realignments are limited to a permanent loss of 500 linear feet of intermittent or perennial stream length at each crossing. Public road crossings with permanent losses greater than 500 linear feet of intermittent or perennial stream associated with new alignments or realignments will be evaluated as an individual permit i.e., a Letter of Permission or as a Standard Individual Permit.

   (c) All linear transportation project crossings resulting in the permanent loss of greater than 300 linear feet of intermittent or perennial stream will require mitigation to compensate for impacts to the "waters of the U.S." The permanent loss of "waters of the U.S." includes the linear feet of water that is permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity and not restored to pre-construction contours and elevations after construction. In addition to the notification requirements contained in NWP 14, the permittee must submit a PCN to the district engineer prior to commencing the activity for the permanent loss of greater than 300 feet of intermittent and perennial stream of all "waters of the U.S.". (See General Condition 31 and the definition of "loss of waters of the United States" in the Nationwide Permits for further information.)

Further information:
Outstanding State or National Resource Water (OSNRWs), Exceptional Waters (EWs), and Coldwater Aquatic Habitat Waters (CAHs) are waters designated by the Commonwealth of Kentucky, Natural Resources and Environmental Protection Cabinet. The list can be found at the following link: http://eppcapp.ky.gov/spwaters/
Designated Critical Habitat (DCH) under the Endangered Species Act is determined within the Commonwealth of Kentucky by the U.S. Fish and Wildlife Service. The current list of Kentucky's Threatened, Endangered, and Federal Candidate Species can be found at the following link: http://www.fws.gov/frankfort/EndangeredSpecies.html

Information on Pre-Construction Notification (PCN) can be found at NWP General Condition No. 31 (Federal Register, Volume 77, No. 34, Tuesday, February 21, 2012, pp 10286-10288).
Mitigation includes activities that avoid, minimize, and compensate for impacts.

COORDINATING RESOURCE AGENCIES

Chief, Wetlands Regulatory Section
U.S. Environmental Protection Agency
Region IV
Atlanta Federal Center
61 Forsyth Street, SW
Atlanta, Georgia 30303
Supervisor
U.S. Fish & Wildlife Service
JC Watts Federal Building, Room 265
330 West Broadway
Frankfort, Kentucky 40601
Supervisor
401 Water Quality Certification
Kentucky Division of Water
200 Fair Oaks Lane, 4th Floor
Frankfort, Kentucky 40601
Commissioner
Department of Fish and Wildlife Resources
#1 Game Farm Road
Frankfort, Kentucky 40601
Executive Director and State Historic Preservation Officer
Kentucky Heritage Council
300 Washington Street
Frankfort, Kentucky 40601

ADDITIONAL COORDINATING RESOURCE AGENCY FOR NWPS 21, 49, AND 50

Kentucky Department of Natural Resources
Division of Mine Permits
#2 Hudson Hollow
Frankfort, Kentucky 40601

US Army Corps of Engineers

Nationwide Permit
No. 14, Linear Transportation Projects

Activities required for the construction, expansion, modification, or improvement of linear transportation projects (e.g., roads, highways, railways, trails, airport runways, and taxiways) in waters of the United States.

a. For linear transportation projects in non-tidal waters, the discharge cannot cause the loss of greater than 1/2-acre of waters of the United States. For linear transportation projects in tidal waters, the discharge cannot cause the loss of greater than 1/3-acre of waters of the United States.

b. Any stream channel modification, including bank stabilization, is limited to the minimum necessary to construct or protect the linear transportation project; such modifications must be in the immediate vicinity of the project.

c. This NWP also authorizes temporary structures, fills, and work necessary to construct the linear transportation project. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

d. This NWP cannot be used to authorize non-linear features commonly associated with transportation projects, such as vehicle maintenance or storage buildings, parking lots, train stations, or aircraft hangars.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if: (1) the loss of waters of the United States exceeds
1/10-acre; or (2) there is a discharge in a special aquatic site, including wetlands. (See general condition 31.) (Sections 10 and 404)

Note: Some discharges for the construction of farm roads or forest roads, or temporary roads for moving mining equipment, may qualify for an exemption under Section 404(f) of the Clean Water Act (see 33 CFR 323.4).

Valid from March 19, 2012 through March 18, 2017

Nationwide Permit General Conditions

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/or Coastal Zone Management Act consistency for an NWP. Every person who may wish to obtain permit authorization under one or more NWPs, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that all of the provisions of 33 CFR §§ 330.1 through 330.6 apply to every NWP authorization. Note especially 33 CFR § 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

1. Navigation. (a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

(c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. Aquatic Life Movements. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species.

3. Spawning Areas. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. Migratory Bird Breeding Areas. Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. Shellfish Beds. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

6. Suitable Material. No activity may use unsuitable material (e.g., trash, debris, car

bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act).

7. Water Supply Intakes. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. Management of Water Flows. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization and storm water management activities, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. Fills Within 100-Year Floodplains. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. Equipment. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow.

13. Removal of Temporary Fills. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. Proper Maintenance. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. Single and Complete Project. The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

16. Wild and Scenic Rivers. No activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River

designation or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service).

17. Tribal Rights. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

18. Endangered Species. (a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify the critical habitat of such species. No activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless Section 7 consultation addressing the effects of the proposed activity has been completed.

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will review the documentation and determine whether it is sufficient to address ESA compliance for the NWP activity, or whether additional ESA consultation is necessary.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species or designated critical habitat, the pre-construction notification must include the name(s) of the endangered or threatened species that might be affected by the proposed work or that utilize the designated critical habitat that might be affected by the proposed work. The district engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps' determination within 45 days of receipt of a complete pre-construction notification. In cases where the non-Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the project, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification the proposed activities will have "no effect" on listed species or critical habitat, or until Section 7 consultation has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation with the FWS or NMFS the district engineer may add species-specific regional endangered species conditions to the NWPs.

(e) Authorization of an activity by a NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the U.S. FWS or the NMFS, The Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word "harm" in the definition of "take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the U.S. FWS and NMFS or their world wide web pages at http://www.fws.gov/ or http://www.fws.gov/ipac and http://www.noaa.gov/fisheries.html respectively.

19. Migratory Birds and Bald and Golden Eagles. The permittee is responsible for obtaining any "take" permits required under the U.S. Fish and Wildlife Service's regulations governing compliance with the Migratory Bird Treaty Act or the Bald and Golden Eagle Protection Act. The permittee should contact the appropriate local office of the U.S. Fish and Wildlife Service to determine if such "take" permits are required for a particular activity.

20. Historic Properties. (a) In cases where the district engineer determines that the activity may affect properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of Section 106 of the National Historic Preservation Act. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will review the documentation and determine whether it is sufficient to address section 106 compliance for the NWP activity, or whether additional section 106 consultation is necessary.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the authorized activity may have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties may be affected by the proposed work or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of or potential for the presence of historic resources can be sought from the State Historic Preservation Officer or Tribal Historic Preservation Officer, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of Section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts, which may include background research, consultation, oral history interviews, sample field investigation, and field survey. Based on the information submitted and these efforts, the district engineer shall determine whether the proposed activity has the potential to cause an effect on the historic properties. Where the non-Federal applicant has identified historic properties on which the activity may have the potential to cause effects and so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects or that consultation under Section 106 of the NHPA has been completed.

(d) The district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA Section 106 consultation is required. Section 106 consultation is not required when the Corps determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR §800.3(a)). If NHPA section 106 consultation is required and will occur, the district engineer will notify the non-Federal applicant that he or she cannot begin work until Section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must

still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110k of the NHPA (16 U.S.C. 470h-2(k)) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of Section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

21. Discovery of Previously Unknown Remains and Artifacts. If you discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by this permit, you must immediately notify the district engineer of what you have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. Designated Critical Resource Waters. Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, and 52 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, and 38, notification is required in accordance with general condition 31, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after it is determined that the impacts to the critical resource waters will be no more than minimal.

23. Mitigation. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that adverse effects on the aquatic environment are minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the adverse effects to the aquatic environment are minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse effects of the proposed activity are minimal, and provides a project-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in minimal adverse effects on the aquatic environment. Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in minimal adverse effects on the aquatic environment.

(2) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, wetland restoration should be the first compensatory mitigation option considered.

(3) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) – (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)).

(4) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan only needs to address the baseline conditions at the impact site and the number of credits to be provided.

(5) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan.

(d) For losses of streams or other open waters that require pre-construction notification, the district engineer may require compensatory mitigation, such as stream rehabilitation, enhancement, or preservation, to ensure that the activity results in minimal adverse effects on the aquatic environment.

(e) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any project resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that a project already meeting the established acreage limits also satisfies the minimal impact requirement associated with the NWPs.

(f) Compensatory mitigation plans for projects in or near streams or other open waters will normally include a requirement for the restoration or establishment, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, riparian areas may be the only compensatory mitigation required. Riparian areas should consist

of native species. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to establish a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or establishing a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(g) Permittees may propose the use of mitigation banks, in-lieu fee programs, or separate permittee-responsible mitigation. For activities resulting in the loss of marine or estuarine resources, permittee-responsible compensatory mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(h) Where certain functions and services of waters of the United States are permanently adversely affected, such as the conversion of a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse effects of the project to the minimal level.

24. Safety of Impoundment Structures. To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. Water Quality. Where States and authorized Tribes, or EPA where applicable, have not previously certified compliance of an NWP with CWA Section 401, individual 401 Water Quality Certification must be obtained or waived (see 33 CFR 330.4(c)). The district engineer or State or Tribe may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

26. Coastal Zone Management. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). The district engineer or a State may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with

any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is prohibited, except when the acreage loss of waters of the United States authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

29. Transfer of Nationwide Permit Verifications. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

"When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below."

_____
(Transferee)

_____
(Date)

30. Compliance Certification. Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

(a) A statement that the authorized work was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

(b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and

(c) The signature of the permittee certifying the completion of the work and mitigation.

31. Pre-Construction Notification. (a) Timing. Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

(1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

(2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or in the vicinity of the project, or to notify the Corps pursuant to general condition 20 that the activity may have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or Section 106 of the National Historic Preservation (see 33 CFR 330.4(g)) has been completed. Also, work cannot begin under NWPs 21, 49, or 50 until the permittee has received written approval from the Corps. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) Contents of Pre-Construction Notification: The PCN must be in writing and include the following information:

(1) Name, address and telephone numbers of the prospective permittee;

(2) Location of the proposed project;

(3) A description of the proposed project; the project's purpose; direct and indirect adverse environmental effects the project would cause, including the anticipated amount of loss of water of the United States expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity. The description should be sufficiently detailed to allow the district engineer to determine that the adverse effects of the project will be minimal and to determine the need for compensatory mitigation. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the project and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative

description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

(4) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many waters of the United States. Furthermore, the 45 day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

(5) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse effects are minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(6) If any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, for non-Federal applicants the PCN must include the name(s) of those endangered or threatened species that might be affected by the proposed work or utilize the designated critical habitat that may be affected by the proposed work. Federal applicants must provide documentation demonstrating compliance with the Endangered Species Act; and

(7) For an activity that may affect a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, for non-Federal applicants the PCN must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic property. Federal applicants must provide documentation demonstrating compliance with Section 106 of the National Historic Preservation Act.

(c) Form of Pre-Construction Notification: The standard individual permit application form (Form ENG 4345) may be used, but the completed application form must clearly indicate that it is a PCN and must include all of the information required in paragraphs (b)(1) through (7) of this general condition. A letter containing the required information may also be used.

(d) Agency Coordination: (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the project's adverse environmental effects to a minimal level.

(2) For all NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States, for NWP 21, 29, 39, 40, 42, 43, 44, 50, 51, and 52 activities that require pre-construction notification and will result in the loss of greater than 300 linear feet of intermittent and ephemeral stream bed, and for all NWP 48 activities that require pre-construction notification, the district engineer will immediately provide (e.g., via e-mail, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (U.S. FWS, state natural resource or water quality agency, EPA, State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Office (THPO), and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to telephone or fax the district engineer notice that they intend to provide substantive, site-specific comments.

The comments must explain why the agency believes the adverse effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure the net adverse environmental effects to the aquatic environment of the proposed activity are minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(3) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by Section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(4) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.

D. District Engineer's Decision

1. In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. For a linear project, this determination will include an evaluation of the individual crossings to determine whether they individually satisfy the terms and conditions of the NWP(s), as well as the cumulative effects caused by all of the crossings authorized by NWP. If an applicant requests a waiver of the 300 linear foot limit on impacts to intermittent or ephemeral streams or of an otherwise applicable limit, as provided for in NWPs 13, 21, 29, 36, 39, 40, 42, 43, 44, 50, 51 or 52, the district engineer will only grant the waiver upon a written determination that the NWP activity will result in minimal adverse effects. When making minimal effects determinations the district engineer will consider the direct and indirect effects caused by the NWP activity. The district engineer will also consider site specific factors, such as the environmental setting in the vicinity of the NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g., partial or complete loss), the duration of the adverse effects (temporary or permanent), the importance of the aquatic resource functions to the region (e.g., watershed or ecoregion), and mitigation required by the district engineer. If an appropriate functional assessment method is available and practicable to use, that assessment method may be used by the district engineer to assist in the minimal adverse effects determination. The district engineer may add case-specific special conditions to the NWP authorization to address site-specific environmental concerns.

2. If the proposed activity requires a PCN and will result in a loss of greater than 1/10-acre of wetlands, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for projects with smaller impacts. The district engineer will consider any proposed compensatory mitigation the applicant has included in the proposal in determining whether the net adverse environmental effects to the aquatic environment of the proposed activity are minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse effects on the aquatic environment are minimal, after considering mitigation, the district engineer will notify the permittee and include any activity-specific conditions in the NWP verification the district engineer deems necessary. Conditions for compensatory mitigation requirements must comply with the appropriate provisions at 33 CFR 332.3(k). The district engineer must approve the final mitigation plan before the permittee commences work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the proposed compensatory mitigation plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure no more than minimal adverse effects on the aquatic environment. If the net adverse effects of the project on the aquatic environment (after consideration of the compensatory mitigation proposal) are determined by the district engineer to be minimal, the district engineer will provide a timely written response to the applicant. The response will state that the project can proceed under the terms and conditions of the NWP, including any activity-specific conditions added to the NWP authorization by the district engineer.

3. If the district engineer determines that the adverse effects of the proposed work are more than minimal, then the district engineer will notify the applicant either: (a) that the project does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (b) that the project is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse effects on the aquatic environment to the minimal level; or (c) that the project is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse effects occur to the aquatic environment, the activity will be authorized within the 45-day PCN period, with activity-specific conditions that state the mitigation requirements. The authorization will include the necessary conceptual or detailed mitigation or a requirement that the applicant submit a mitigation plan that would reduce the adverse effects on the aquatic environment to the minimal level. When mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan or has determined that prior approval of a final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation.

E. Further Information

1. District Engineers have authority to determine if an activity complies with the terms and conditions of an NWP.

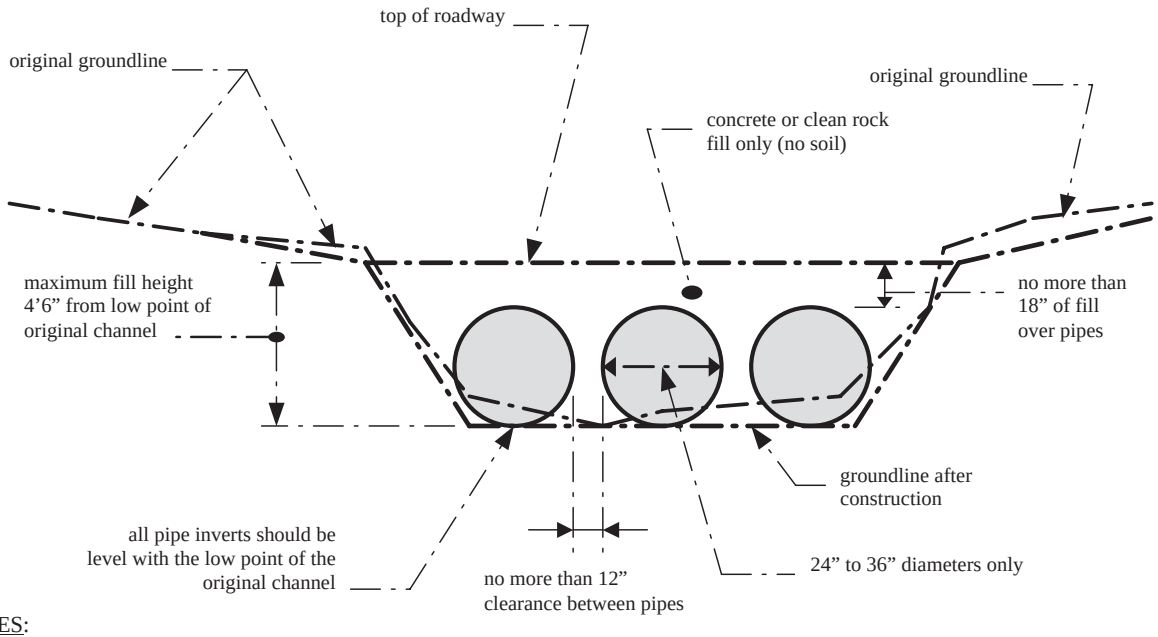
2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.

3. NWPs do not grant any property rights or exclusive privileges.

4. NWPs do not authorize any injury to the property or rights of others.

5. NWPs do not authorize interference with any existing or proposed Federal project.

ATTACHMENT 1



NOTES:

1. This is a conceptual drawing. The number and size of pipes and other details will vary depending on specific site conditions.
2. The pipes and backfill must be contained within the stream channel as shown above. During the construction of the approaches and access roadway across the floodplain, unstable and unconsolidated materials unsuitable for roadways may be excavated and replaced with riprap, crushed stone, or other stable road construction materials. This may only be done, however, with the following provisions: (1) the disposal of excess, unconsolidated materials thus excavated must be outside of the floodplain and (2) the finished surface of the completed road may be no more than three inches (3") above the pre-construction surface of the floodplain at any point beyond the top of banks.

LOW-WATER CROSSING

STANDARD DRAWING
Not to Scale

Kentucky Transportation Cabinet

Highway District 3 (1)

And

_____(2), Construction

Kentucky Pollutant Discharge Elimination System
Permit KYR10
Best Management Practices (BMP) plan

Groundwater protection plan

For Highway Construction Activities

For
Item No. 3-8503.00

US 231 between KY 70 and Boat Factory Road
WGL Smith Street Morgantown
Butler County

Project: PCN ## - #### (2)

Project information

Note – (1) = Design (2) = Construction (3) = Contractor

1. Owner – Kentucky Transportation Cabinet, **District 3**(1)
2. Resident Engineer: (2)
3. Contractor name: (2)
   Address: (2)

   Phone number: (2)
   Contact: (2)
   Contractors agent responsible for compliance with the KPDES permit requirements (3):
4. Project Control Number (2)
5. Route (Address) **US231, WGL Smith Street, Morgantown KY 42261**
6. Latitude/Longitude (project mid-point) **37° 13' 45" N; -86° 41' 22" W** (1)
7. County **Butler (**1)
8. Project start date (date work will begin): (2)
9. Projected completion date: (2)

A. Site description:

1. Nature of Construction Activity: **widening US231 to provide a continuous center turn lane between KY 70 and Boat Factory Road**

2. Order of major soil disturbing activities (2) and (3)

3. Projected volume of material to be moved **Embankment 15,063 Cubic Yards & Excavation 5,424 Cubic Yards (**1)

4. Estimate of total project area **4.1 acres** (1)

5. Estimate of area to be disturbed **5.0 acres** (1)

6. Post construction runoff coefficient will be included in the project drainage folder. **Persons needing information pertaining to the runoff coefficient will contact the resident engineer to request this information**. (1)

7. Data describing existing soil condition **Gilpin Loam6 to 12% slopes eroded and well drained (**1) & (2)

8. Data describing existing discharge water quality **average** (1) & (2)

9. Receiving water name **Big Branch** (1)

10. TMDLs and Pollutants of Concern in Receiving Waters: (1 DEA)

11. Site map – Project layout sheet plus the erosion control sheets in the project plans that depict Disturbed Drainage Areas (DDAs) and related information. These sheets depict the existing project conditions with areas delineated by DDA (drainage area bounded by watershed breaks and right of way limits), the storm water discharge locations (either as a point discharge or as overland flow) and the areas that drain to each discharge point. These plans define the limits of areas to be disturbed and the location of control measures. Controls will be either site specific as designated by the designer or will be annotated by the contractor and resident engineer before disturbance commences. The project layout sheet shows the surface waters and wetlands.

12. Potential sources of pollutants:

The primary source of pollutants is solids that are mobilized during storm events. Other sources of pollutants include oil/fuel/grease from servicing

and operating construction equipment, concrete washout water, sanitary wastes and trash/debris. (3)

B. Sediment and Erosion Control Measures:

1. Plans for highway construction projects will include erosion control sheets that depict Disturbed Drainage Areas (DDAs) and related information. These plan sheets will show the existing project conditions with areas delineated by DDA within the right of way limits, the discharge points and the areas that drain to each discharge point. Project managers and designers will analyze the DDAs and identify Best Management Practices (BMPs) that are site specific. The balance of the BMPs for the project will be listed in the bid documents for selection and use by the contractor on the project with approval by the resident engineer.

   Projects that do not have DDAs annotated on the erosion control sheets will employ the same concepts for development and managing BMP plans.

2. Following award of the contract, the contractor and resident engineer will annotate the erosion control sheets showing location and type of BMPs for each of the DDAs that will be disturbed at the outset of the project. This annotation will be accompanied by an order of work that reflects the order or sequence of major soil moving activities. The remaining DDAs are to be designated as “Do Not Disturb” until the contractor and resident engineer prepare the plan for BMPs to be employed. The initial BMP’s shall be for the first phase (generally clearing and grubbing) and shall be modified as needed as the project changes phases. The BMP Plan will be modified to reflect disturbance in additional DDA’s as the work progresses. <u>All DDA’s will have adequate BMP’s in place before being disturbed.</u>

3. As DDAs are prepared for construction, the following will be addressed for the project as a whole or for each DDA as appropriate:

   - Construction Access – This is the first land-disturbing activity. As soon as construction begins, bare areas will be stabilized with gravel and temporary mulch and/or vegetation.
   - At the beginning of the project, all DDAs for the project will be inspected for areas that are a source of storm water pollutants. Areas that are a source of pollutants will receive appropriate cover or BMPs to arrest the introduction of pollutants into storm water. Areas that have not been opened by the contractor will be

inspected periodically (once per month) to determine if there is a need to employ BMPs to keep pollutants from entering storm water.

- Clearing and Grubbing – The following BMP's will be considered and used where appropriate.
  - Leaving areas undisturbed when possible.
  - Silt basins to provide silt volume for large areas.
  - Silt Traps Type A for small areas.
  - Silt Traps Type C in front of existing and drop inlets which are to be saved
  - Diversion ditches to catch sheet runoff and carry it to basins or traps or to divert it around areas to be disturbed.
  - Brush and/or other barriers to slow and/or divert runoff.
  - Silt fences to catch sheet runoff on short slopes. For longer slopes, multiple rows of silt fence may be considered.
  - Temporary Mulch for areas which are not feasible for the fore mentioned types of protections.
  - Non-standard or innovative methods.
- Cut & Fill and placement of drainage structures - The BMP Plan will be modified to show additional BMP's such as:
  - Silt Traps Type B in ditches and/or drainways as they are completed
  - Silt Traps Type C in front of pipes after they are placed
  - Channel Lining
  - Erosion Control Blanket
  - Temporary mulch and/or seeding for areas where construction activities will be ceased for 21 days or more.
  - Non-standard or innovative methods
- Profile and X-Section in place – The BMP Plan will be modified to show elimination of BMP's which had to be removed and the addition of new BMP's as the roadway was shaped. Probably changes include:
  - Silt Trap Type A, Brush and/or other barriers, Temporary Mulch, and any other BMP which had to be removed for final grading to take place.
  - Additional Silt Traps Type B and Type C to be placed as final drainage patterns are put in place.
  - Additional Channel Lining and/or Erosion Control Blanket.
  - Temporary Mulch for areas where Permanent Seeding and Protection cannot be done within 21 days.
  - Special BMP's such as Karst Policy
- Finish Work (Paving, Seeding, Protect, etc.) – A final BMP Plan will result from modifications during this phase of construction. Probably changes include:
  - Removal of Silt Traps Type B from ditches and drainways if they are protected with other BMP's which are sufficient to

control erosion, i.e. Erosion Control Blanket or Permanent Seeding and Protection on moderate grades.
- Permanent Seeding and Protection
- Placing Sod
- Planting trees and/or shrubs where they are included in the project

➢ BMP's including Storm Water Management Devices such as velocity dissipation devices and Karst policy BMP's to be installed during construction to control the pollutants in storm water discharges that will occur after construction has been completed are: **None**

C. Other Control Measures

1. No solid materials, including building materials, shall be discharged to waters of the commonwealth, except as authorized by a Section 404 permit.

2. Waste Materials

All waste materials that may leach pollutants (paint and paint containers, caulk tubes, oil/grease containers, liquids of any kind, soluble materials, etc.) will be collected and stored in appropriate covered waste containers. Waste containers shall be removed from the project site on a sufficiently frequent basis as to not allow wastes to become a source of pollution. All personnel will be instructed regarding the correct procedure for waste disposal. Wastes will be disposed in accordance with appropriate regulations. Notices stating these practices will be posted in the office.

3. Hazardous Waste

All hazardous waste materials will be managed and disposed of in the manner specified by local or state regulation. The contractor shall notify the Resident Engineer if there any hazardous wastes being generated at the project site and how these wastes are being managed. Site personnel will be instructed with regard to proper storage and handling of hazardous wastes when required. The Transportation Cabinet will file for generator, registration when appropriate, with the Division of Waste Management and advise the contractor regarding waste management requirements.

4. Spill Prevention

The following material management practices will be used to reduce the risk of spills or other exposure of materials and substances to the weather and/or runoff.

➢ **Good Housekeeping:**

The following good housekeeping practices will be followed onsite during the construction project.

- An effort will be made to store only enough product required to do the job
- All materials stored onsite will be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure
- Products will be kept in their original containers with the original manufacturer's label
- Substances will not be mixed with one another unless recommended by the manufacturer
- Whenever possible, all of the product will be used up before disposing of the container
- Manufacturers' recommendations for proper use and disposal will be followed
- The site contractor will inspect daily to ensure proper use and disposal of materials onsite

➢ **Hazardous Products:**

These practices will be used to reduce the risks associated with any and all hazardous materials.

- Products will be kept in original containers unless they are not resealable
- Original labels and material safety data sheets (MSDS) will be reviewed and retained
- Contractor will follow procedures recommended by the manufacturer when handling hazardous materials
- If surplus product must be disposed of, manufacturers' or state/local recommended methods for proper disposal will be followed

The following product-specific practices will be followed onsite:

➢ **Petroleum Products:**

Vehicles and equipment that are fueled and maintained on site will be monitored for leaks, and receive regular preventative maintenance to reduce the chance of leakage. Petroleum products onsite will be stored in tightly sealed containers, which are clearly labeled and will be protected from exposure to weather.

The contractor shall prepare an Oil Pollution Spill Prevention Control and Countermeasure plan when the project that involves the storage of petroleum

products in 55 gallon or larger containers with a total combined storage capacity of 1,320 gallons. This is a requirement of 40 CFR 112.

This project (will / will not) (3) have over 1,320 gallons of petroleum products with a total capacity, sum of all containers 55 gallon capacity and larger.

- **Fertilizers:**

Fertilizers will be applied at rates prescribed by the contract, standard specifications or as directed by the resident engineer. Once applied, fertilizer will be covered with mulch or blankets or worked into the soil to limit exposure to storm water. Storage will be in a covered shed. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid spills.

- **Paints:**

All containers will be tightly sealed and stored indoors or under roof when not being used. Excess paint or paint wash water will not be discharged to the drainage or storm sewer system but will be properly disposed of according to manufacturers' instructions or state and local regulations.

- **Concrete Truck Washout:**

Concrete truck mixers and chutes will not be washed on pavement, near storm drain inlets, or within 75 feet of any ditch, stream, wetland, lake, or sinkhole. Where possible, excess concrete and wash water will be discharged to areas prepared for pouring new concrete, flat areas to be paved that are away from ditches or drainage system features, or other locations that will not drain off site. Where this approach is not possible, a shallow earthen wash basin will be excavated away from ditches to receive the wash water

- **Spill Control Practices**

In addition to the good housekeeping and material management practices discussed in the previous sections of this plan, the following practices will be followed for spill prevention and cleanup**:**

- Manufacturers' recommended methods for spill cleanup will be clearly posted. All personnel will be made aware of procedures and the location of the information and cleanup supplies.
- Materials and equipment necessary for spill cleanup will be kept in the material storage area. Equipment and materials will include as appropriate, brooms, dust pans, mops, rags, gloves, oil absorbents, sand, sawdust, and plastic and metal trash containers.
- All spills will be cleaned up immediately after discovery.

- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contract with a hazardous substance.
- Spills of toxic or hazardous material will be reported to the appropriate state/local agency as required by KRS 224 and applicable federal law.
- The spill prevention plan will be adjusted as needed to prevent spills from reoccurring and improve spill response and cleanup.
- Spills of products will be cleaned up promptly. Wastes from spill clean up will be disposed in accordance with appropriate regulations.

D. Other State and Local Plans

This BMP plan shall include any requirements specified in sediment and erosion control plans, storm water management plans or permits that have been approved by other state or local officials. Upon submittal of the NOI, other requirements for surface water protection are incorporated by reference into and are enforceable under this permit (even if they are not specifically included in this BMP plan). This provision does not apply to master or comprehensive plans, non-enforceable guidelines or technical guidance documents that are not identified in a specific plan or permit issued for the construction site by state or local officials. NONE (1)

E. Maintenance

1. The BMP plan shall include a clear description of the maintenance procedures necessary to keep the control measures in good and effective operating condition.

- Maintenance of BMPs during construction shall be a result of weekly and post rain event inspections with action being taken by the contractor to correct deficiencies.

- Post Construction maintenance will be a function of normal highway maintenance operations. Following final project acceptance by the cabinet, district highway crews will be responsible for identification and correction of deficiencies regarding ground cover and cleaning of storm water BMPs. The project manager shall identify any BMPs that will be for the purpose of post construction storm water management with specific guidance for any non-routine maintenance.

F. Inspections

Inspection and maintenance practices that will be used to maintain erosion and sediment controls:

- All erosion prevention and sediment control measures will be inspected at least once each week and following any rain of one-half inch or more.
- Inspections will be conducted by individuals that have received KyTC Grade Level II training or other qualification as prescribed by the cabinet that includes instruction concerning sediment and erosion control.
- Inspection reports will be written, signed, dated, and kept on file.
- Areas at final grade will be seeded and mulched within 14 days.
- Areas that are not at final grade where construction has ceased for a period of 21 days or longer and soil stock piles shall receive temporary mulch no later than 14 days from the last construction activity in that area.
- All measures will be maintained in good working order; if a repair is necessary, it will be initiated within 24 hours of being reported.
- Built-up sediment will be removed from behind the silt fence before it has reached halfway up the height of the fence.
- Silt fences will be inspected for bypassing, overtopping, undercutting, depth of sediment, tears, and to ensure attachment to secure posts.
- Sediment basins will be inspected for depth of sediment, and built-up sediment will be removed when it reaches 70 percent of the design capacity and at the end of the job.
- Diversion dikes and berms will be inspected and any breaches promptly repaired. Areas that are eroding or scouring will be repaired and re-seeded / mulched as needed.
- Temporary and permanent seeding and mulching will be inspected for bare spots, washouts, and healthy growth. Bare or eroded areas will be repaired as needed.
- All material storage and equipment servicing areas that involve the management of bulk liquids, fuels, and bulk solids will be inspected weekly for conditions that represent a release or possible release of pollutants to the environment.

G. Non – Storm Water discharges

It is expected that non-storm water discharges may occur from the site during the construction period. Examples of non-storm water discharges include:

- Water from water line flushings.

- Water form cleaning concrete trucks and equipment.
- Pavement wash waters (where no spills or leaks of toxic or hazardous materials have occurred).
- Uncontaminated groundwater and rain water (from dewatering during excavation).

All non-storm water discharges will be directed to the sediment basin or to a filter fence enclosure in a flat vegetated infiltration area or be filtered via another approved commercial product.

H. Groundwater Protection Plan (3)

This plan serves as the groundwater protection plan as required by 401 KAR 5:037.

- Contractors statement: (3)

The following activities, as enumerated by 401 KAR 5:037 Section 2 that require the preparation and implementation of a groundwater protection plan, will or may be may be conducted as part of this construction project:

_____ 2. (e) land treatment or land disposal of a pollutant;

_____ 2. (f) Storing, …, or related handling of hazardous waste, solid waste or special waste, …, in tanks, drums, or other containers, or in piles, (This does not include wastes managed in a container placed for collection and removal of municipal solid waste for disposal off site);

_____ 2. (g) …. Handling of materials in bulk quantities (equal or greater than 55 gallons or 100 pounds net dry weight transported held in an individual container) that, if released to the environment, would be a pollutant;

_____ 2. (j) Storing or related handling of road oils, dust suppressants, …., at a central location;

_____ 2. (k) Application or related handling of road oils, dust suppressants or deicing materials, (does not include use of chloride-based deicing materials applied to roads or parking lots);

_____ 2. (m) Installation, construction, operation, or abandonment of wells, bore holes, or core holes, (this does not include bore holes for the purpose of explosive demolition);

Or, check the following only if there are no qualifying activities

KyTC BMP Plan for Project PCN ## - ####

_____ There are no activities for this project as listed in 401 KAR 5:037 Section 2 that require the preparation and implementation of a groundwater protection plan.

The contractor is responsible for the preparation of a plan that addresses the

401 KAR 5:037 Section 3. (3) Elements of site specific groundwater protection plan:

(a) General information about this project is covered in the Project information;
(b) Activities that require a groundwater protection plan have been identified above;
(c) Practices that will protect groundwater from pollution are addressed in section C. Other control measures.
(d) Implementation schedule – all practices required to prevent pollution of groundwater are to be in place prior to conducting the activity;
(e) Training is required as a part of the ground water protection plan. All employees of the contractor, sub-contractor and resident engineer personnel will be trained to understand the nature and requirements of this plan as they pertain to their job function(s). Training will be accomplished within one week of employment and annually thereafter. A record of training will be maintained by the contractor with a copy provide to the resident engineer.
(f) Areas of the project and groundwater plan activities will be inspected as part of the weekly sediment and erosion control inspections
(g) Certification (see signature page.)

KyTC BMP Plan for Project PCN ## -

Contractor and Resident Engineer Plan certification

The contractor that is responsible for implementing this BMP plan is identified in the Project Information section of this plan.

The following certification applies to all parties that are signatory to this BMP plan:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. Further, this plan complies with the requirements of 401 KAR 5:037. By this certification, the undersigned state that the individuals signing the plan have reviewed the terms of the plan and will implement its provisions as they pertain to ground water protection.

Resident Engineer and Contractor Certification:

(2) Resident Engineer signature

Signed _____title_____, _____
Typed or printed name[2] signature

(3) Signed _____title_____, _____
Typed or printed name[1] signature

1. Contractors Note: to be signed by a person who is the owner, a responsible corporate officer, a general partner or the proprietor or a person designated to have the authority to sign reports by such a person in accordance with 401 KAR 5:060 Section 9. This delegation shall be in writing to: Manager, KPDES Branch, Division of Water, 14 Reilly Road, Frankfort Kentucky 40601. Reference the Project Control Number (PCN) and KPDES number when one has been issued.

2. KyTC note: to be signed by the Chief District Engineer or a person designated to have the authority to sign reports by such a person (usually the resident engineer) in accordance with 401 KAR 5:060 Section 9. This delegation shall be in writing to: Manager, KPDES Branch, Division of Water, 14 Reilly Road, Frankfort Kentucky 40601 Reference the Project Control Number (PCN) and KPDES number when one has been issued.

Sub-Contractor Certification

The following sub-contractor shall be made aware of the BMP plan and responsible for implementation of BMPs identified in this plan as follows:

Subcontractor

Name:
Address:
Address:

Phone:

The part of BMP plan this subcontractor is responsible to implement is:

I certify under penalty of law that I understand the terms and conditions of the general Kentucky Pollutant Discharge Elimination System permit that authorizes the storm water discharges, the BMP plan that has been developed to manage the quality of water to be discharged as a result of storm events associated with the construction site activity and management of non-storm water pollutant sources identified as part of this certification.

Signed _____title_____, _____
Typed or printed name[1] signature

1. Sub Contractor Note: to be signed by a person who is the owner, a responsible corporate officer, a general partner or the proprietor or a person designated to have the authority to sign reports by such a person in accordance with 401 KAR 5:060 Section 9. This delegation shall be in writing to: Manager, KPDES Branch, Division of Water, 14 Reilly Road, Frankfort Kentucky 40601. Reference the Project Control Number (PCN) and KPDES number when one has been issued.

KENTUCKY TRANSPORTATION CABINET
COMMUNICATION ALL PROMISES (CAP)

Item Number	County	Route	Project Manager
03-8503.00	BUTLER	US 231	kytc\stewart.lich

CAP #	Date of Promise	Requestor	ocation of Promise:	CAP Description
1	7/23/12	Renee Slaughter		FOR THE INDIANA BAT POTENTIAL HABITAT A DECISION MUST BE MADE PRIOR TO CONSTRUCTION WHETHER WE CAN USE TREE CUTTING RESTRICTIONS
2	8/20/13	Nikki Jones	Parcel 8 (Forsythe)	THE CABINET AGREES TO NOT DISTURB THE TREE AND ROOT SYSTEM LOCATED AT APPROXIMATE RT. STATION 108+50, IF AT ALL POSSIBLE. PROPERTY OWNERS DO UNDERSTAND THE SLOPE/ DISTURBANCE LIMITS ARE IN CLOSE PROXIMITY TO THE TREE AND ITS ROOTS. PROPERTY OWNERS HAVE REQUESTED TO SPEAK WITH THE CONTRACTOR, REGARDING THE TREE, ONCE CONSTRUCTION BEGINS.
3	7/30/14	Renee Slaughter	US 231 Morgantown KY	This replaces CAP #1. KYTC proposes to clear 0.51 acres of "potential" Indiana Bat Habitat during the widening of US 231 between KY 70 and Boat Factory Road in Morgantown, KY with seasonal restrictions that allow tree cutting to OCCUR ONLY BETWEEN OCTOBER 15-MARCH 31. No impacts to winter habitat. No payments required.

PART II

SPECIFICATIONS AND STANDARD DRAWINGS

SPECIFICATIONS REFERENCE

Any reference in the plans or proposal to previous editions of the *Standard Specifications for Road and Bridge Construction* and *Standard Drawings* are superseded by *Standard Specifications for Road and Bridge Construction, Edition of 2012* and *Standard Drawings, Edition of 2012 with the 2012 Revision.*

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the August 22, 2014 Letting

Subsection:	102.15 Process Agent.
Revision:	Replace the 1st paragraph with the following: Every corporation doing business with the Department shall submit evidence of compliance with KRS Sections 14A.4-010, 271B.11-010, 271B.11-070, 271B.11-080, 271B.5-010 and 271B.16-220, and file with the Department the name and address of the process agent upon whom process may be served.
Subsection:	105.13 Claims Resolution Process.
Revision:	Delete all references to TC 63-34 and TC 63-44 from the subsection as these forms are no longer available through the forms library and are forms generated within the AASHTO SiteManager software.
Subsection:	108.03 Preconstruction Conference.
Revision:	Replace 8) Staking with the following: 8) Staking (designated by a Professional Engineer or Land Surveyor licensed in the Commonwealth of Kentucky.
Subsection:	109.07.02 Fuel.
Revision:	Revise item Crushed Aggregate Used for Embankment Stabilization to the following: Crushed Aggregate Used for Stabilization of Unsuitable Materials Used for Embankment Stabilization
	Delete the following item from the table. ~~Crushed Sandstone Base (Cement Treated)~~
Subsection:	110.02 Demobilization.
Revision:	Replace the first part of the first sentence of the second paragraph with the following: Perform all work and operations necessary to accomplish final clean-up as specified in the first paragraph of Subsection 105.12;
Subsection:	112.03.12 Project Traffic Coordinator (PTC).
Revision:	Replace the last paragraph of this subsection with the following: Ensure the designated PTC has sufficient skill and experience to properly perform the task assigned and has successfully completed the qualification courses.
Subsection:	112.04.18 Diversions (By-Pass Detours).
Revision:	Insert the following sentence after the 2nd sentence of this subsection. The Department will not measure temporary drainage structures for payment when the contract documents provide the required drainage opening that must be maintained with the diversion. The temporary drainage structures shall be incidental to the construction of the diversion. If the contract documents fail to provide the required drainage opening needed for the diversion, the cost of the temporary drainage structure will be handled as extra work in accordance with section 109.04.
Subsection:	201.03.01 Contractor Staking.
Revision:	Replace the first paragraph with the following: Perform all necessary surveying under the general supervision of a Professional Engineer or Land Surveyor licensed in the Commonwealth of Kentucky.

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the August 22, 2014 Letting

Subsection:	201.04.01 Contractor Staking.
Revision:	Replace the last sentence of the paragraph with the following: Complete the general layout of the project under the supervision of a Professional Engineer or Land Surveyor licensed in the Commonwealth of Kentucky.
Subsection:	206.04.01 Embankment-in-Place.
Revision:	Replace the fourth paragraph with the following: The Department will not measure **suitable** excavation included in the original plans that is disposed of for payment and will consider it incidental to Embankment-in-Place.
Subsection:	208.02.01 Cement.
Revision:	Replace paragraph with the following: Select Type I or Type II cement conforming to Section 801. Use the same type cement throughout the work.
Subsection:	208.03.06 Curing and Protection.
Revision:	Replace the fourth paragraph with the following: Do not allow traffic or equipment on the finished surface until the stabilized subgrade has cured for a total of 7-days with an ambient air temperature above 40 degrees Fahrenheit. A curing day consists of a continuous 24-hour period in which the ambient air temperature does not fall below 40 degrees Fahrenheit. Curing days will not be calculated consecutively, but must total seven (7) , 24-hour days with the ambient air temperature remaining at or above 40 degrees Fahrenheit before traffic or equipment will be allowed to traverse the stabilized subgrade. The Department may allow a shortened curing period when the Contractor requests. The Contractor shall give the Department at least 3 day notice of the request for a shortened curing period. The Department will require a minimum of 3 curing days after final compaction. The Contractor shall furnish cores to the treated depth of the roadbed at 500 feet intervals for each lane when a shortened curing time is requested. The Department will test cores using an unconfined compression test. Roadbed cores must achieve a minimum strength requirement of 80 psi.
Subsection:	208.03.06 Curing and Protection.
Revision:	Replace paragraph eight with the following: At no expense to the Department, repair any damage to the subgrade caused by freezing.
Subsection:	212.03.03 Permanent Seeding and Protection.
Part:	A) Seed Mixtures for Permanent Seeding.
Revision:	Revise **Seed Mix Type I** to the mixture shown below: 50% Kentucky 31 Tall Fescue (Festuca arundinacea) 35% Hard Fescue (Festuca (Festuca longifolia) 10% Ryegrass, Perennial (Lolium perenne) 5% White Dutch Clover (Trifolium repens)
Subsection:	212.03.03 Permanent Seeding and Protection.
Part:	A) Seed Mixtures for Permanent Seeding.
Number:	2)
Revision:	Replace the paragraph with the following: Permanent Seeding on Slopes Greater than 3:1 in Highway Districts 4, 5, 6, and 7. Apply seed mix Type II at a minimum application rate of 100 pounds per acre. If adjacent to a golf course replace the crown vetch with Kentucky 31 Tall Fescue.

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the August 22, 2014 Letting

Subsection:	212.03.03 Permanent Seeding and Protection.
Part:	A) Seed Mixtures for Permanent Seeding.
Number:	3)
Revision:	Replace the paragraph with the following: Permanent Seeding on Slopes Greater than 3:1 in Highway Districts 1, 2, 3, 8, 9, 10, 11, and 12. Apply seed mix Type III at a minimum application rate of 100 pounds per acre. If adjacent to crop land or golf course, replace the Sericea Lespedeza with Kentucky 31 Fescue.
Subsection:	212.03.03 Permanent Seeding and Protection.
Part:	B) Procedures for Permanent Seeding.
Revision:	Delete the first sentence of the section.
Subsection:	212.03.03 Permanent Seeding and Protection.
Part:	B) Procedures for Permanent Seeding.
Revision:	Replace the second and third sentence of the section with the following: Prepare a seedbed and apply an initial fertilizer that contains a minimum of 100 pounds of nitrogen, 100 pounds of phosphate, and 100 pounds of potash per acre. Apply agricultural limestone to the seedbed when the Engineer determines it is needed. When required, place agricultural limestone at a rate of 3 tons per acre.
Subsection:	212.03.03 Permanent Seeding and Protection.
Part:	D) Top Dressing.
Revision:	Change the title of part to D) Fertilizer.
Subsection:	212.03.03 Permanent Seeding and Protection.
Part:	D) Fertilizer.
Revision:	Replace the first paragraph with the following: Apply fertilizer at the beginning of the seeding operation and after vegetation is established. Use fertilizer delivered to the project in bags or bulk. Apply initial fertilizer to all areas prior to the seeding or sodding operation at the application rate specified in 212.03.03 B). Apply 20-10-10 fertilizer to the areas after vegetation has been established at a rate of 11.5 pounds per 1,000 square feet. Obtain approval from the Engineer prior to the 2nd fertilizer application. Reapply fertilizer to any area that has a streaked appearance. The reapplication shall be at no additional cost to the Department. Re-establish any vegetation severely damaged or destroyed because of an excessive application of fertilizer at no cost to the Department.
Subsection:	212.03.03 Permanent Seeding and Protection.
Part:	D) Fertilizer.
Revision:	Delete the second paragraph.
Subsection:	212.04.04 Agricultural Limestone.
Revision:	Replace the entire section with the following: The Department will measure the quantity of agricultural limestone in tons.
Subsection:	212.04.05 Fertilizer.
Revision:	Replace the entire section with the following: The Department will measure fertilizer used in the seeding or sodding operations for payment. The Department will measure the quantity by tons.

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the August 22, 2014 Letting

Subsection:	212.05 PAYMENT.
Revision:	Delete the following item code:
	Code Pay Item Pay Unit
	05966 Topdressing Fertilizer Ton
Subsection:	212.05 PAYMENT.
Revision:	Add the following pay items:
	Code Pay Item Pay Unit
	05963 Initial Fertilizer Ton
	05964 20-10-10 Fertilizer Ton
	05992 Agricultural Limestone Ton
Subsection:	213.03.02 Progress Requirements.
Revision:	Replace the last sentence of the third paragraph with the following:
	Additionally, the Department will apply a penalty equal to the liquidated damages when all aspects of the work are not coordinated in an acceptable manner within 7 calendar days after written notification.
Subsection:	213.03.05 Temporary Control Measures.
Part:	E) Temporary Seeding and Protection.
Revision:	Delete the second sentence of the first paragraph.
Subsection:	304.02.01 Physical Properties.
Table:	Required Geogrid Properties
Revision:	Replace all references to Test Method "GRI-GG2-87" with ASTM D 7737.
Subsection:	402.03.02 Contractor Quality Control and Department Acceptance.
Part:	B) Sampling.
Revision:	Replace the second sentence with the following:
	The Department will determine when to obtain the quality control samples using the random-number feature of the mix design submittal and approval spreadsheet. The Department will randomly determine when to obtain the verification samples required in Subsections 402.03.03 and 402.03.04 using the Asphalt Mixture Sample Random Tonnage Generator.
Subsection:	402.03.02 Contractor Quality Control and Department Acceptance.
Part:	D) Testing Responsibilities.
Number:	3) VMA.
Revision:	Add the following paragraph below Number 3) VMA:
	Retain the AV/VMA specimens and one additional corresponding G_{mm} sample for 5 working days for mixture verification testing by the Department. For Specialty Mixtures, retain a mixture sample for 5 working days for mixture verification testing by the Department. When the Department's test results do not verify that the Contractor's quality control test results are within the acceptable tolerances according to Subsection 402.03.03, retain the samples and specimens from the affected sublot(s) for the duration of the project.
Subsection:	402.03.02 Contractor Quality Control and Department Acceptance.
Part:	D) Testing Responsibilities.
Number:	4) Density.
Revision:	Replace the second sentence of the Option A paragraph with the following:
	Perform coring by the end of the following work day.

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the August 22, 2014 Letting

Subsection:	402.03.02 Contractor Quality Control and Department Acceptance.
Part:	D) Testing Responsibilities.
Number:	5) Gradation.
Revision:	Delete the second paragraph.
Subsection:	402.03.02 Contractor Quality Control and Department Acceptance.
Part:	H) Unsatisfactory Work.
Number:	1) Based on Lab Data.
Revision:	Replace the second paragraph with the following: When the Engineer determines that safety concerns or other considerations prohibit an immediate shutdown, continue work and the Department will make an evaluation of acceptability according to Subsection 402.03.05.
Subsection:	402.03.03 Verification.
Revision:	Replace the first paragraph with the following: **402.03.03 Mixture Verification.** For volumetric properties, the Department will perform a minimum of one verification test for AC, AV, and VMA according to the corresponding procedures as given in Subsection 402.03.02. The Department will randomly determine when to obtain the verification sample using the Asphalt Mixture Sample Random Tonnage Generator. For specialty mixtures, the Department will perform one AC and one gradation determination per lot according to the corresponding procedures as given in Subsection 402.03.02. However, Department personnel will not perform AC determinations according to KM 64-405. The Contractor will obtain a quality control sample at the same time the Department obtains the mixture verification sample and perform testing according to the procedures given in Subsection 402.03.02. If the Contractor's quality control sample is verified by the Department's test results within the tolerances provided below, the Contractor's sample will serve as the quality control sample for the affected sublot. The Department may perform the mixture verification test on the Contractor's equipment or on the Department's equipment.
Subsection:	402.03.03 Verification.
Part:	A) Evaluation of Sublot(s) Verified by Department.
Revision:	Replace the third sentence of the second paragraph with the following: When the paired *t* -test indicates that the Contractor's data and Department's data are possibly not from the same population, the Department will investigate the cause for the difference according to Subsection 402.03.05 and implement corrective measures as the Engineer deems appropriate.
Subsection:	402.03.03 Verification.
Part:	B) Evaluation of Sublots Not Verified by Department.
Revision:	Replace the third sentence of the first paragraph with the following: When differences between test results are not within the tolerances listed below, the Department will resolve the discrepancy according to Subsection 402.03.05.

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the August 22, 2014 Letting

Subsection: **Part:** **Revision:**	402.03.03 Verification. B) Evaluation of Sublots Not Verified by Department. Replace the third sentence of the second paragraph with the following: When the *F* -test or *t* -test indicates that the Contractor's data and Department's data are possibly not from the same population, the Department will investigate the cause for the difference according to Subsection 402.03.05 and implement corrective measures as the Engineer deems appropriate.
Subsection: **Part:** **Revision:**	402.03.03 Verification. C) Test Data Patterns. Replace the second sentence with the following: When patterns indicate substantial differences between the verified and non-verified sublots, the Department will perform further comparative testing according to subsection 402.03.05.
Subsection: **Revision:**	402.03 CONSTRUCTION. Add the following subsection: **402.03.04 Testing Equipment and Technician Verification.** For mixtures with a minimum quantity of 20,000 tons and for every 20,000 tons thereafter, the Department will obtain an additional verification sample at random using the Asphalt Mixture Sample Random Tonnage Generator in order to verify the integrity of the Contractor's and Department's laboratory testing equipment and technicians. The Department will obtain a mixture sample of at least 150 lb at the asphalt mixing plant according to KM 64-425 and split it according to AASHTO R 47. The Department will retain one split portion of the sample and provide the other portion to the Contractor. At a later time convenient to both parties, the Department and Contractor will simultaneously reheat the sample to the specified compaction temperature and test the mixture for AV and VMA using separate laboratory equipment according to the corresponding procedures given in Subsection 402.03.02. The Department will evaluate the differences in test results between the two laboratories. When the difference between the results for AV or VMA is not within ± 2.0 percent, the Department will investigate and resolve the discrepancy according to Subsection 402.03.05.
Subsection: **Revision:**	402.03.04 Dispute Resolution. Change the subsection number to 402.03.05.
Subsection: **Part:** **Table:** **Revision:**	402.05 PAYMENT. Lot Pay Adjustment Schedule Compaction Option A Base and Binder Mixtures AC Replace the Deviation from JMF(%) that corresponds to a Pay Value of 0.95 to ±0.6.
Subsection: **Revision:**	403.02.10 Material Transfer Vehicle (MTV). Replace the first sentence with the following: In addition to the equipment specified above, provide a MTV with the following minimum characteristics:
Subsection: **Revision:**	412.02.09 Material Transfer Vehicle (MTV). Replace the paragraph with the following: Provide and utilize a MTV with the minimum characteristics outlined in section 403.02.10.

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the August 22, 2014 Letting

Subsection: **Revision:**	412.03.07 Placement and Compaction. Replace the first paragraph with the following: Use a MTV when placing SMA mixture in the driving lanes. The MTV is not required on ramps and/or shoulders unless specified in the contract. When the Engineer determines the use of the MTV is not practical for a portion of the project, the Engineer may waive its requirement for that portion of pavement by a letter documenting the waiver.
Subsection: **Revision:**	412.04 MEASUREMENT. Add the following subsection: 412.04.03. Material Transfer Vehicle (MTV). The Department will not measure the MTV for payment and will consider its use incidental to the asphalt mixture.
Subsection: **Part:** **Revision:**	501.03.19 Surface Tolerances and Testing Surface. B) Ride Quality. Add the following to the end of the first paragraph: The Department will specify if the ride quality requirements are Category A or Category B when ride quality is specified in the Contract. Category B ride quality requirements shall apply when the Department fails to classify which ride quality requirement will apply to the Contract.
Subsection: **Revision:**	603.03.06 Cofferdams. Replace the seventh sentence of paragraph one with the following: Submit drawings that are stamped by a Professional Engineer licensed in the Commonwealth of Kentucky.
Subsection: **Revision:**	605.03.04 Tack Welding. Insert the subsection and the following: 605.03.04 Tack Welding. The Department does not allow tack welding.
Subsection: **Part:** **Number:** **Revision:**	606.03.17 Special Requirements for Latex Concrete Overlays. A) Existing Bridges and New Structures. 1) Prewetting and Grout-Bond Coat. Add the following sentence to the last paragraph: Do not apply a grout-bond coat on bridge decks prepared by hydrodemolition.
Subsection: **Revision:**	609.03 Construction. Replace Subsection 609.03.01 with the following: 609.03.01 A) Swinging the Spans. Before placing concrete slabs on steel spans or precast concrete release the temporary erection supports under the bridge and swing the span free on its supports. 609.03.01 B) Lift Loops. Cut all lift loops flush with the top of the precast beam once the beam is placed in the final location and prior to placing steel reinforcement. At locations where lift loops are cut, paint the top of the beam with galvanized or epoxy paint.
Subsection: **Revision:**	611.03.02 Precast Unit Construction. Replace the first sentence of the subsection with the following: Construct units according to ASTM C1577, **replacing Table 1 (Design Requirements for Precast Concrete Box Sections Under Earth, Dead and HL-93 Live Load Conditions) with KY Table 1 (Precast Culvert KYHL-93 Design Table)**, and Section 605 with the following exceptions and additions:

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the August 22, 2014 Letting

Subsection: **Number:** **Revision:**	613.03.01 Design. 2) Replace "AASHTO Standard Specifications for Highway Bridges" with "AASHTO LRFD Bridge Design Specifications"
Subsection: **Revision:**	615.06.02 Add the following sentence to the end of the subsection. The ends of units shall be normal to walls and centerline except exposed edges shall be beveled ¾ inch.
Subsection: **Revision:**	615.06.03 Placement of Reinforcement in Precast 3-Sided Units. Replace the reference of 6.6 in the section to 615.06.06.
Subsection: **Revision:**	615.06.04 Placement of Reinforcement for Precast Endwalls. Replace the reference of 6.7 in the section to 615.06.07.
Subsection: **Revision:**	615.06.06 Laps, Welds, and Spacing for Precast 3-Sided Units. Replace the subsection with the following: Tension splices in the circumferential reinforcement shall be made by lapping. Laps may not be tack welded together for assembly purposes. For smooth welded wire fabric, the overlap shall meet the requirements of AASHTO 2012 Bridge Design Guide Section 5.11.2.5.2 and AASHTO 2012 Bridge Design Guide Section 5.11.6.3. For deformed welded wire fabric, the overlap shall meet the requirements of AASHTO 2012 Bridge Design Guide Section 5.11.2.5.1 and AASHTO 2012 Bridge Design Guide Section 5.11.6.2. The overlap of welded wire fabric shall be measured between the outer most longitudinal wires of each fabric sheet. For deformed billet-steel bars, the overlap shall meet the requirements of AASHTO 2012 Bridge Design Guide Section 5.11.2.1. For splices other than tension splices, the overlap shall be a minimum of 12" for welded wire fabric or deformed billet-steel bars. The spacing center to center of the circumferential wires in a wire fabric sheet shall be no less than 2 inches and no more than 4 inches. The spacing center to center of the longitudinal wires shall not be more than 8 inches. The spacing center to center of the longitudinal distribution steel for either line of reinforcing in the top slab shall be not more than 16 inches.
Subsection: **Revision:**	615.06.07 Laps, Welds, and Spacing for Precast Endwalls. Replace the subsection with the following: Splices in the reinforcement shall be made by lapping. Laps may not be tack welded together for assembly purposes. For smooth welded wire fabric, the overlap shall meet the requirements of AASHTO 2012 Bridge Design Guide Section 5.11.2.5.2 and AASHTO 2012 Bridge Design Guide Section 5.11.6.3. For deformed welded wire fabric, the overlap shall meet the requirements of AASHTO 2012 Bridge Design Guide Section 5.11.2.5.1 and AASHTO 2012 Bridge Design Guide Section 5.11.6.2. For deformed billet-steel bars, the overlap shall meet the requirements of AASHTO 2012 Bridge Design Guide Section 5.11.2.1. The spacing center-to-center of the wire fabric sheet shall not be less than 2 inches or more than 8 inches.

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the August 22, 2014 Letting

Subsection:	615.08.01 Type of Test Specimen.
Revision:	Replace the subsection with the following: Start-up slump, air content, unit weight, and temperature tests will be performed each day on the first batch of concrete. Acceptable start-up results are required for production of the first unit. After the first unit has been established, random acceptance testing is performed daily for each 50 yd^3 (or fraction thereof). In addition to the slump, air content, unit weight, and temperature tests, a minimum of one set of cylinders shall be required each time plastic property testing is performed.
Subsection:	615.08.02 Compression Testing.
Revision:	Delete the second sentence.
Subsection:	615.08.04 Acceptability of Core Tests.
Revision:	Delete the entire subsection.
Subsection:	615.12 Inspection.
Revision:	Add the following sentences to the end of the subsection: Units will arrive at jobsite with the "Kentucky Oval" stamped on the unit which is an indication of acceptable inspection at the production facility. Units shall be inspected upon arrival for any evidence of damage resulting from transport to the jobsite.
Subsection:	716.02.02 Paint.
Revision:	Replace sentence with the following: Conform to Section 821.
Subsection:	716.03 CONSTRUCTION.
Revision:	Replace bullet 5) with the following: 5) AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 2013-6th Edition with current interims,
Subsection:	716.03.02 Lighting Standard Installation.
Revision:	Replace the second sentence with the following: Regardless of the station and offset noted, locate all poles/bases behind the guardrail a minimum of four feet from the front face of the guardrail to the front face of the pole base.
Subsection:	716.03.02 Lighting Standard Installation.
Part:	A) Conventional Installation.
Revision:	Replace the third sentence with the following: Orient the transformer base so the door is positioned on the side away from on-coming traffic.
Subsection:	716.03.02 Lighting Standard Installation.
Part:	A) Conventional Installation.
Number:	1) Breakaway Installation and Requirements.
Revision:	Replace the first sentence with the following: For breakaway supports, conform to Section 12 of the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 2013-6th Edition with current interims.
Subsection:	716.03.02 Lighting Standard Installation.
Part:	B) High Mast Installation
Revision:	Replace the first sentence with the following: Install each high mast pole as noted on plans.
Subsection:	716.03.02 Lighting Standard Installation.
Part:	B) High Mast Installation
Number:	2) Concrete Base Installation
Revision:	Modification of Chart and succeeding paragraphs within this section:

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the August 22, 2014 Letting

	<table><tr><td colspan="8">Drilled Shaft Depth Data</td></tr><tr><td colspan="2">Level Ground</td><td colspan="2">3:1 Ground Slope</td><td colspan="2">2:1 Ground Slope</td><td colspan="2">1.5:1 Ground Slope (2)</td></tr><tr><td>Soil</td><td>Rock</td><td>Soil</td><td>Rock</td><td>Soil</td><td>Rock</td><td>Soil</td><td>Rock</td></tr><tr><td>17 ft</td><td>7 ft</td><td>19 ft</td><td>7 ft</td><td>20 ft</td><td>7 ft</td><td>(1)</td><td>7 ft</td></tr></table><table><tr><td colspan="4">Steel Requirements</td></tr><tr><td colspan="2">Vertical Bars</td><td colspan="2">Ties or Spiral</td></tr><tr><td>Size</td><td>Total</td><td>Size</td><td>Spacing or Pitch</td></tr><tr><td>#10</td><td>16</td><td>#4</td><td>12 inch</td></tr></table> (1): Shaft length is 22' for cohesive soil only. For cohesionless soil, contact geotechnical branch for design. (2): Do not construct high mast drilled shafts on ground slopes steeper than 1.5:1 without the approval of the Division of Traffic. If rock is encountered during drilling operations and confirmed by the engineer to be of sound quality, the shaft is only required to be further advanced into the rock by the length of rock socket shown in the table. The total length of the shaft need not be longer than that of soil alone. Both longitudinal rebar length and number of ties or spiral length shall be adjusted accordingly. If a shorter depth is desired for the drilled shaft, the contractor shall provide, for the state's review and approval, a detailed column design with individual site specific soil and rock analysis performed and approved by a Professional Engineer licensed in the Commonwealth of Kentucky. Spiral reinforcement may be substituted for ties. If spiral reinforcement is used, one and one-half closed coils shall be provided at the ends of each spiral unit. Subsurface conditions consisting of very soft clay or very loose saturated sand could result in soil parameters weaker than those assumed. Engineer shall consult with the geotechnical branch if such conditions are encountered. The bottom of the drilled hole shall be firm and thoroughly cleaned so no loose or compressible materials are present at the time of the concrete placement. If the drilled hole contains standing water, the concrete shall be placed using a tremie to displace water. Continuous concrete flow will be required to insure full displacement of any water. The reinforcement and anchor bolts shall be adequately supported in the proper positions so no movement occurs during concrete placement. Welding of anchor bolts to the reinforcing cage is unacceptable, templates shall be used. Exposed portions of the foundation shall be formed to create a smooth finished surface. All forming shall be removed upon completion of foundation construction.
Subsection: **Part:** **Revision:**	716.03.03 Trenching. A) Trenching of Conduit for Highmast Ducted Cables. Add the following after the first sentence: If depths greater than 24 inches are necessary, obtain the Engineer's approval and maintain the required conduit depths coming into the junction boxes. No payment for additional junction boxes for greater depths will be allowed.

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the August 22, 2014 Letting

Subsection:	716.03.03 Trenching.
Part:	B) Trenching of Conduit for Non-Highmast Cables.
Revision:	Add the following after the second sentence: If depths greater than 24 inches are necessary for either situation listed previously, obtain the Engineer's approval and maintain the required conduit depths coming into the junction boxes. No payment for additional junction boxes for greater depths will be allowed.
Subsection:	716.03.10 Junction Boxes.
Revision:	Replace subsection title with the following: Electrical Junction Box.
Subsection:	716.04.07 Pole with Secondary Control Equipment.
Revision:	Replace the paragraph with the following: The Department will measure the quantity as each individual unit furnished and installed. The Department will not measure mounting the cabinet to the pole, backfilling, restoration, any necessary hardware to anchor pole, or electrical inspection fees, and will consider them incidental to this item of work. The Department will also not measure furnishing and installing electrical service conductors, specified conduits, meter base, transformer, service panel, fused cutout, fuses, lighting arrestors, photoelectrical control, circuit breaker, contactor, manual switch, ground rods, and ground wires and will consider them incidental to this item of work.
Subsection:	716.04.08 Lighting Control Equipment.
Revision:	Replace the paragraph with the following: The Department will measure the quantity as each individual unit furnished and installed. The Department will not measure constructing the concrete base, excavation, backfilling, restoration, any necessary anchors, or electrical inspection fees, and will consider them incidental to this item of work. The Department will also not measure furnishing and installing electrical service conductors, specified conduits, meter base, transformer, service panel, fused cutout, fuses, lighting arrestors, photoelectrical control, circuit breakers, contactor, manual switch, ground rods, and ground wires and will consider them incidental to this item of work.
Subsection:	716.04.09 Luminaire.
Revision:	Replace the first sentence with the following: The Department will measure the quantity as each individual unit furnished and installed.
Subsection:	716.04.10 Fused Connector Kits.
Revision:	Replace the first sentence with the following: The Department will measure the quantity as each individual unit furnished and installed.
Subsection:	716.04.13 Junction Box.
Revision:	Replace the subsection title with the following: Electrical Junction Box Type Various.
Subsection:	716.04.13 Junction Box.
Part:	A) Junction Electrical.
Revision:	Rename A) Junction Electrical to the following: A) Electrical Junction Box.
Subsection:	716.04.14 Trenching and Backfilling.
Revision:	Replace the second sentence with the following: The Department will not measure excavation, backfilling, underground utility warning tape (if required), the restoration of disturbed areas to original condition, and will consider them incidental to this item of work.

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the August 22, 2014 Letting

Subsection: 716.04.18 Remove Lighting.
Revision: Replace the paragraph with the following:
The Department will measure the quantity as a lump sum for the removal of lighting equipment. The Department will not measure the disposal of all equipment and materials off the project by the contractor. The Department also will not measure the transportation of the materials and will consider them incidental to this item of work.

Subsection: 716.04.20 Bore and Jack Conduit.
Revision: Replace the paragraph with the following: The Department will measure the quantity in linear feet. This item shall include all work necessary for boring and installing conduit under an existing roadway. Construction methods shall be in accordance with Sections 706.03.02, paragraphs 1, 2, and 4.

Subsection: 716.05 PAYMENT.
Revision: Replace items 04810-04811, 20391NS835 and, 20392NS835 under Code, Pay Item, and Pay Unit with the following:

Code	Pay Item	Pay Unit
04810	Electrical Junction Box	Each
04811	Electrical Junction Box Type B	Each
20391NS835	Electrical Junction Box Type A	Each
20392NS835	Electrical Junction Box Type C	Each

Subsection: 723.02.02 Paint.
Revision: Replace sentence with the following: Conform to Section 821.

Subsection: 723.03 CONSTRUCTION.
Revision: Replace bullet 5) with the following: 5) AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 2013-6th Edition with current interims,

Subsection: 723.03.02 Poles and Bases Installation.
Revision: Replace the first sentence with the following:
Regardless of the station and offset noted, locate all poles/bases behind the guardrail a minimum of four feet from the front face of the guardrail to the front face of the pole base.

Subsection: 723.03.02 Poles and Bases Installation.
Part: A) Steel Strain and Mastarm Poles Installation
Revision: Replace the second paragraph with the following: For concrete base installation, see Section 716.03.02, B), 2), Paragraphs 2-7. Drilled shaft depth shall be based on the soil conditions encountered during drilling and slope condition at the site. Refer to the design chart below:

Subsection: 723.03.02 Poles and Bases Installation.
Part: B) Pedestal or Pedestal Post Installation.
Revision: Replace the fourth sentence of the paragraph with the following: For breakaway supports, conform to Section 12 of the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 2013-6th Edition with current interims.

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the August 22, 2014 Letting

Subsection: **Part:** **Revision:**	723.03.03 Trenching. A) Under Roadway. Add the following after the second sentence: If depths greater than 24 inches are necessary, obtain the Engineer's approval and maintain ether required conduit depths coming into the junction boxes. No payment for additional junction boxes for greater depths will be allowed.
Subsection: **Revision:**	723.03.11 Wiring Installation. Add the following sentence between the fifth and sixth sentences: Provide an extra two feet of loop wire and lead-in past the installed conduit in poles, pedestals, and junction boxes.
Subsection: **Revision:**	723.03.12 Loop Installation. Replace the fourth sentence of the 2nd paragraph with the following: Provide an extra two feet of loop wire and lead-in past the installed conduit in poles, pedestals, and junction boxes.
Subsection: **Revision:**	723.04.02 Junction Box. Replace subsection title with the following: Electrical Junction Box Type Various.
Subsection: **Revision:**	723.04.03 Trenching and Backfilling. Replace the second sentence with the following: The Department will not measure excavation, backfilling, underground utility warning tape (if required), the restoration of disturbed areas to original condition, and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.10 Signal Pedestal. Replace the second sentence with the following: The Department will not measure excavation, concrete, reinforcing steel, specified conduits, fittings, ground rod, ground wire, backfilling, restoring disturbed areas, or other necessary hardware and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.15 Loop Saw Slot and Fill. Replace the second sentence with the following: The Department will not measure sawing, cleaning and filling induction loop saw slot, loop sealant, backer rod, and grout and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.16 Pedestrian Detector. Replace the paragraph with the following: The Department will measure the quantity as each individual unit furnished, installed and connected to pole/pedestal. The Department will not measure installing R10-3e (with arrow) sign, furnishing and installing mounting hardware for sign and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.18 Signal Controller- Type 170. Replace the second sentence with the following: The Department will not measure constructing the concrete base or mounting the cabinet to the pole, connecting the signal and detectors, excavation, backfilling, restoration, any necessary pole mounting hardware, electric service, or electrical inspection fees and will consider them incidental to this item of work. The Department will also not measure furnishing and connecting the induction of loop amplifiers, pedestrian isolators, load switches, model 400 modem card; furnishing and installing electrical service conductors, specified conduits, anchors, meter base, fused cutout, fuses, ground rods, ground wires and will consider them incidental to this item of work.

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the August 22, 2014 Letting

Subsection:	723.04.20 Install Signal Controller - Type 170.
Revision:	Replace the paragraph with the following: The Department will measure the quantity as each individual unit installed. The Department will not measure constructing the concrete base or mounting the cabinet to the pole, connecting the signal and detectors, and excavation, backfilling, restoration, any necessary pole mounting hardware, electric service, or electrical inspection fees and will consider them incidental to this item of work. The Department will also not measure connecting the induction loop amplifiers, pedestrian, isolators, load switches, model 400 modem card; furnishing and installing electrical service conductors, specified conduits, anchors, meter base, fused cutout, fuses, ground rods, ground wires and will consider them incidental to this item of work.
Subsection:	723.04.22 Remove Signal Equipment.
Revision:	Replace the paragraph with the following: The Department will measure the quantity as a lump sum removal of signal equipment. The Department will not measure the return of control equipment and signal heads to the Department of Highways as directed by the District Traffic Engineer. The Department also will not measure the transportation of materials of the disposal of all other equipment and materials off the project by the contractor and will consider them incidental to this item of work.
Subsection:	723.04.28 Install Pedestrian Detector Audible.
Revision:	Replace the second sentence with the following: The Department will not measure installing sign R10-3e (with arrow) and will consider it incidental to this item of work.
Subsection:	723.04.29 Audible Pedestrian Detector.
Revision:	Replace the second sentence with the following: The Department will not measure furnishing and installing the sign R10-3e (with arrow) and will consider it incidental to this item of work.
Subsection:	723.04.30 Bore and Jack Conduit.
Revision:	Replace the paragraph with the following: The Department will measure the quantity in linear feet. This item shall include all work necessary for boring and installing conduit under an existing roadway. Construction methods shall be in accordance with Sections 706.03.02, paragraphs 1, 2, and 4.
Subsection:	723.04.31 Install Pedestrian Detector.
Revision:	Replace the paragraph with the following: The Department will measure the quantity as each individual unit installed and connected to pole/pedestal. The Department will not measure installing sign R 10-3e (with arrow) and will consider it incidental to this item of work.
Subsection:	723.04.32 Install Mast Arm Pole.
Revision:	Replace the second sentence with the following: The Department will not measure arms, signal mounting brackets, anchor bolts, or any other necessary hardware and will consider them incidental to this item of work.
Subsection:	723.04.33 Pedestal Post.
Revision:	Replace the second sentence with the following: The Department will not measure excavation, concrete, reinforcing steel, anchor bolts, conduit, fittings, ground rod, ground wire, backfilling, restoration, or any other necessary hardware and will consider them incidental to this item of work.

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the August 22, 2014 Letting

Subsection: 723.04.36 Traffic Signal Pole Base.
Revision: Replace the second sentence with the following: The Department will not measure excavation, reinforcing steel, anchor bolts, specified conduits, ground rods, ground wires, backfilling, or restoration and will consider them incidental to this item of work.

Subsection: 723.04.37 Install Signal Pedestal.
Revision: Replace the second sentence with the following: The Department will not measure excavation, concrete, reinforcing steel, anchor bolts, specified conduits, fittings, ground rod, ground wire, backfilling, restoration, or any other necessary hardware and will consider them incidental to this item of work.

Subsection: 723.04.38 Install Pedestal Post.
Revision: Replace the second sentence with the following: The Department will not measure excavation, concrete, reinforcing steel, anchor bolts, specified conduits, fittings, ground rod, ground wire, backfilling, restoration, or any other necessary hardware and will consider them incidental to this item of work.

Subsection: 723.05 PAYMENT.
Revision: Replace items 04810-04811, 20391NS835 and, 20392NS835 under Code, Pay Item, and Pay Unit with the following:

Code	Pay Item	Pay Unit
04810	Electrical Junction Box	Each
04811	Electrical Junction Box Type B	Each
20391NS835	Electrical Junction Box Type A	Each
20392NS835	Electrical Junction Box Type C	Each

Subsection: 804.01.02 Crushed Sand.
Revision: Delete last sentence of the section.

Subsection: 804.01.06 Slag.
Revision: Add subsection and following sentence.
Provide blast furnace slag sand where permitted. The Department will allow steel slag sand only in asphalt surface applications.

Subsection: 804.04 Asphalt Mixtures.
Revision: Replace the subsection with the following:
Provide natural, crushed, conglomerate, or blast furnace slag sand, with the addition of filler as necessary, to meet gradation requirements. The Department will allow any combination of natural, crushed, conglomerate or blast furnace slag sand when the combination is achieved using cold feeds at the plant. The Engineer may allow other fine aggregates.

Subsection: 806.03.01 General Requirements.
Revision: Replace the second sentence of the paragraph with the following:
Additionally, the material must have a minimum solubility of 99.0 percent when tested according to AASHTO T 44 and PG 76-22 must exhibit a minimum recovery of 60 percent, with a J_{NR} (nonrecoverable creep compliance) between 0.1 and 0.5, when tested according to AASHTO TP 70.

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the August 22, 2014 Letting

Subsection: **Table:** **Revision:**	806.03.01 General Requirements. PG Binder Requirements and Price Adjustment Schedule Replace the Elastic Recovery, % [3] (AASHTO T301) and all corresponding values in the table with the following: Test | Specification | 100% Pay | 90% Pay | 80% Pay | 70% Pay | 50%Pay[1] MSCR recovery, % [3] (AASHTO TP 70) | 60 Min. | ≥58 | 56 | 55 | 54 | <53
Subsection: **Table:** **Superscript:** **Revision:**	806.03.01 General Requirements. PG Binder Requirements and Price Adjustment Schedule (3) Replace [3] with the following: Perform testing at 64°C.
Subsection: **Revision:**	813.04 Gray Iron Castings. Replace the reference to "AASHTO M105" with "ASTM A48".
Subsection: **Number:** **Revision:**	813.09.02 High Strength Steel Bolts, Nuts, and Washers. A) Bolts. Delete first paragraph and "Hardness Number" Table. Replace with the following: A) Bolts. Conform to ASTM A325 (AASHTO M164) or ASTM A490 (AASHTO 253) as applicable.
Subsection: **Revision:**	814.04.02 Timber Guardrail Posts. Third paragraph, replace the reference to "AWPA C14" with "AWPA U1, Section B, Paragraph 4.1".
Subsection: **Revision:**	814.04.02 Timber Guardrail Posts. Replace the first sentence of the fourth paragraph with the following: Use any of the species of wood for round or square posts covered under AWPA U1.
Subsection: **Revision:**	814.04.02 Timber Guardrail Posts. Fourth paragraph, replace the reference to "AWPA C2" with "AWPA U1, Section B, Paragraph 4.1".
Subsection: **Revision:**	814.04.02 Timber Guardrail Posts. Delete the second sentence of the fourth paragraph.
Subsection: **Revision:**	814.05.02 Composite Plastic. 1) Add the following to the beginning of the first paragraph: Select composite offset blocks conforming to this section and assure blocks are from a manufacturer included on the Department's List of Approved Materials. 2) Delete the last paragraph of the subsection.
Subsection: **Revision:**	816.07.02 Wood Posts and Braces. First paragraph, replace the reference to "AWPA C5" with "AWPA U1, Section B, Paragraph 4.1".
Subsection: **Revision:**	816.07.02 Wood Posts and Braces. Delete the second sentence of the first paragraph.
Subsection: **Revision:**	818.07 Preservative Treatment. First paragraph, replace all references to "AWPA C14" with "AWPA U1, Section A".

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the August 22, 2014 Letting

Subsection: **Revision:**	834.14 Lighting Poles. Replace the first sentence with the following: Lighting pole design shall be in accordance with loading and allowable stress requirements of the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 2013-6th Edition with current interims, with the exception of the following: The Cabinet will waive the requirement stated in the first sentence of Section 5.14.6.2 – Reinforced Holes and Cutouts for high mast poles (only). The minimum diameter at the base of the pole shall be 22 inches for high mast poles (only).
Subsection **Revision:**	834.14.03 High Mast Poles. Remove the second and fourth sentence from the first paragraph.
Subsection **Revision:**	834.14.03 High Mast Poles. Replace the third paragraph with the following: Provide calculations and drawings that are stamped by a Professional Engineer licensed in the Commonwealth of Kentucky.
Subsection: **Revision:**	834.14.03 High Mast Poles. Replace paragraph six with the following: Provide a pole section that conforms to ASTM A 595 grade A with a minimum yield strength of 55 KSI or ASTM A 572 with a minimum yield strength of 55 KSI. Use tubes that are round or 16 sided with a four inch corner radius, have a constant linear taper of .144 in/ft and contain only one longitudinal seam weld. Circumferential welded tube butt splices and laminated tubes are not permitted. Provide pole sections that are telescopically slip fit assembled in the field to facilitate inspection of interior surface welds and the protective coating. The minimum length of the telescopic slip splices shall be 1.5 times the inside diameter of the exposed end of the female section. Use longitudinal seam welds as commended in Section 5.15 of the AASHTO 2013 Specifications. The thickness of the transverse base shall not be less than 2 inches. Plates shall be integrally welded to the tubes with a telescopic welded joint or a full penetration groove weld with backup bar. The handhole cover shall be removable from the handhole frame. One the frame side opposite the hinge, provide a mechanism on the handhole cover/frame to place the Department's standard padlock as specified in Section 834.25. The handhole frame shall have two stainless studs installed opposite the hinge to secure the handhole cover to the frame which includes providing stainless steel wing nuts and washers. The handhole cover shall be manufactured from 0.25 inch thick galvanized steel (ASTM A 153) and have a neoprene rubber gasket that is permanently secured to the handhole frame to insure weather-tight protection. The hinge shall be manufactured from 7-guage stainless steel to provide adjustability to insure weather-tight fit for the cover. The minimum clear distance between the transverse plate and the bottom opening of the handhole shall not be less than the diameter of the bottom tube of the pole but needs to be at least 15 inches. Provide products that are hot-dip galvanized to the requirements of either ASTM A123 (fabricated products) or ASTM A 153 (hardware items).
Subsection: **Revision:**	834.16 ANCHOR BOLTS. Insert the following sentence at the beginning of the paragraph: The anchor bolt design shall follow the NCHRP Report 494 Section 2.4 and NCHRP 469 Appendix A Specifications.

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the August 22, 2014 Letting

Subsection:	834.17.01 Conventional.
Revision:	Add the following sentence after the second sentence: Provide a waterproof sticker mounted on the bottom of the housing that is legible from the ground and indicates the wattage of the fixture by providing the first two numbers of the wattage.
Subsection:	834.21.01 Waterproof Enclosures.
Revision:	Replace the last five sentences in the second paragraph with the following sentences: Provide a cabinet door with a louvered air vent, filter-retaining brackets and an easy to clean metal filter. Provide a cabinet door that is keyed with a factory installed standard no. 2 corbin traffic control key. Provide a light fixture with switch and bulb. Use a 120-volt fixture and utilize a L.E.D. bulb (equivalent to 60 watts minimum). Fixture shall be situated at or near the top of the cabinet and illuminate the contents of the cabinet. Provide a 120 VAC GFI duplex receptacle in the enclosure with a separate 20 amp breaker.
Subsection:	835.07 Traffic Poles.
Revision:	Replace the first sentence of the first paragraph with the following: Pole diameter and wall thickness shall be calculated in accordance with the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 2013-6th Edition with current interims.
Subsection:	835.07 Traffic Poles.
Revision:	*Replace the first sentence of the fourth paragraph with the following: Ensure transverse plates have a thickness ≥ 2 inches. *Add the following sentence to the end of the fourth paragraph: The bottom pole diameter shall not be less than 16.25 inches.
Subsection:	835.07 Traffic Poles.
Revision:	Replace the third sentence of the fifth paragraph with the following: For anchor bolt design, pole forces shall be positioned in such a manner to maximize the force on any individual anchor bolt regardless of the actual anchor bolt orientation with the pole.
Subsection:	835.07 Traffic Poles.
Revision:	Replace the first and second sentence of the sixth paragraph with the following: The pole handhole shall be 25 inches by 6.5 inches. The handhole cover shall be removable from the handhole frame. On the frame side opposite the hinge, provide a mechanism on the handhole cover/frame to place the Department's standard padlock as specified in Section 834.25. The handhole frame shall have two stainless studs installed opposite the hinge to secure the handhole cover to the frame which includes providing stainless steel wing nuts and washers. The handhole cover shall be manufactured from 0.25 inch thick galvanized steel (ASTM 153) and have a neoprene rubber gasket that is permanently secured to the handhole frame to insure weather-tight protection. The hinge shall be manufactured from 7 gauge stainless steel to provide adjustability to insure a weather-tight fit for the cover. The minimum clear distance between the transverse plate and the bottom opening of the handhole shall not be less than the diameter of the bottom tube but needs to be at least 12 inches.

Supplemental Specifications to the Standard Specifications for Road and Bridge Construction, 2012 Edition Effective with the August 22, 2014 Letting

Subsection:	835.07 Traffic Poles.
Revision:	*Replace the first sentence of the last paragraph with the following: Provide calculations and drawings that are stamped by a Professional Engineer licensed in the Commonwealth of Kentucky. *Replace the third sentence of the last paragraph with the following: All tables referenced in 835.07 are found in the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 2013-6th Edition with current interims.
Subsection:	835.07.01 Steel Strain Poles.
Revision:	Replace the second sentence of the second paragraph with the following: The detailed analysis shall be certified by a Professional Engineer licensed in the Commonwealth of Kentucky.
Subsection:	835.07.01 Steel Strain Poles.
Revision:	Replace number 7. after the second paragraph with the following: 7. Fatigue calculations should be shown for all fatigue related connections. Provide the corresponding detail, stress category and example from table 11.9.3.1-1.
Subsection:	835.07.02 Mast Arm Poles.
Revision:	Replace the second sentence of the fourth paragraph with the following: The detailed analysis shall be certified by a Professional Engineer licensed in the Commonwealth of Kentucky.
Subsection:	835.07.02 Mast Arm Poles.
Revision:	Replace number 7) after the fourth paragraph with the following: 7) Fatigue calculations should be shown for all fatigue related connections. Provide the corresponding detail, stress category and example from table 11.9.3.1-1.
Subsection:	835.07.03 Anchor Bolts.
Revision:	Add the following to the end of the paragraph: There shall be two steel templates (one can be used for the headed part of the anchor bolt when designed in this manner) provided per pole. Templates shall be contained within a 26.5 inch diameter. All templates shall be fully galvanized (ASTM A 153).
Subsection:	835.16.05 Optical Units.
Revision:	Replace the 3rd paragraph with the following: The list of certified products can be found on the following website: http://www.intertek.com.
Subsection:	835.19.01 Pedestrian Detector Body.
Revision:	Replace the first sentence with the following: Provide a four holed pole mounted aluminum rectangular housing that is compatible with the pedestrian detector.
Subsection:	843.01.01 Geotextile Fabric.
Table:	TYPE I FABRIC GEOTEXTILES FOR SLOPE PROTECTION AND CHANNEL LINING
Revision:	Add the following to the chart:

Property	Minimum Value[(1)]	Test Method
CBR Puncture (lbs)	494	ASTM D6241
Permittivity (1/s)	0.7	ASTM D4491

Supplemental Specifications to the Standard Specifications for Road and Bridge Construction, 2012 Edition Effective with the August 22, 2014 Letting

Subsection: 843.01.01 Geotextile Fabric.
Table: TYPE II FABRIC GEOTEXTILES FOR UNDERDRAINS
Revision: Add the following to the chart:

Property	Minimum Value[1]	Test Method
CBR Puncture (lbs)	210	ASTM D6241
Permittivity (1/s)	0.5	ASTM D4491

Subsection: 843.01.01 Geotextile Fabric.
Table: TYPE III FABRIC GEOTEXTILES FOR SUBGRADE OR EMBANKMENT STABILIZATION
Revision: Add the following to the chart:

Property	Minimum Value[1]	Test Method
CBR Puncture (lbs)	370	ASTM D6241
Permittivity (1/s)	0.05	ASTM D4491

Subsection: 843.01.01 Geotextile Fabric.
Table: TYPE IV FABRIC GEOTEXTILES FOR EMBANKMENT DRAINAGE BLANKETS AND PAVEMENT EDGE DRAINS
Revision: Add the following to the chart:

Property	Minimum Value[1]	Test Method
CBR Puncture (lbs)	309	ASTM D6241
Permittivity (1/s)	0.5	ASTM D4491

Subsection: 843.01.01 Geotextile Fabric.
Table: TYPE V HIGH STRENGTH GEOTEXTILE FABRIC
Revision: Make the following changes to the chart:

Property	Minimum Value[1]	Test Method
CBR Puncture (lbs)	618	ASTM D6241
Grab Strength (lbs)	700	ASTM D4632
Apparent Opening Size	U.S. #40[3]	ASTM D4751

[3] Maximum average roll value.

1I

SPECIAL NOTE FOR PORTABLE CHANGEABLE MESSAGE SIGNS

This Special Note will apply when indicated on the plans or in the proposal.

1.0 DESCRIPTION. Furnish, install, operate, and maintain variable message signs at the locations shown on the plans or designated by the Engineer. Remove and retain possession of variable message signs when they are no longer needed on the project.

2.0 MATERIALS.

2.1 General. Use LED Variable Message Signs Class I, II, or III, as appropriate, from the Department's List of Approved Materials.

Unclassified signs may be submitted for approval by the Engineer. The Engineer may require a daytime and nighttime demonstration. The Engineer will make a final decision within 30 days after all required information is received.

2.2 Sign and Controls. All signs must:

1) Provide 3-line messages with each line being 8 characters long and at least 18 inches tall. Each character comprises 35 pixels.
2) Provide at least 40 preprogrammed messages available for use at any time. Provide for quick and easy change of the displayed message; editing of the message; and additions of new messages.
3) Provide a controller consisting of:
   a) Keyboard or keypad.
   b) Readout that mimics the actual sign display. (When LCD or LCD type readout is used, include backlighting and heating or otherwise arrange for viewing in cold temperatures.)
   c) Non-volatile memory or suitable memory with battery backup for storing pre-programmed messages.
   d) Logic circuitry to control the sequence of messages and flash rate.
4) Provide a serial interface that is capable of supporting complete remote control ability through land line and cellular telephone operation. Include communication software capable of immediately updating the message, providing complete sign status, and allowing message library queries and updates.
5) Allow a single person easily to raise the sign to a satisfactory height above the pavement during use, and lower the sign during travel.
6) Be Highway Orange on all exterior surfaces of the trailer, supports, and controller cabinet.
7) Provide operation in ambient temperatures from -30 to + 120 degrees Fahrenheit during snow, rain and other inclement weather.
8) Provide the driver board as part of a module. All modules are interchangeable, and have plug and socket arrangements for disconnection and reconnection. Printed circuit boards associated with driver boards have a conformable coating to protect against moisture.
9) Provide a sign case sealed against rain, snow, dust, insects, etc. The lens is UV stabilized clear plastic (polycarbonate, acrylic, or other approved material) angled to prevent glare.
10) Provide a flat black UV protected coating on the sign hardware, character PCB, and appropriate lens areas.
11) Provide a photocell control to provide automatic dimming.

1I

12) Allow an on-off flashing sequence at an adjustable rate.
13) Provide a sight to aim the message.
14) Provide a LED display color of approximately 590 nm amber.
15) Provide a controller that is password protected.
16) Provide a security device that prevents unauthorized individuals from accessing the controller.
17) Provide the following 3-line messages preprogrammed and available for use when the sign unit begins operation:

/KEEP/RIGHT/⇒⇒⇒/
/KEEP/LEFT/⇐⇐⇐/
/LOOSE/GRAVEL/AHEAD/
/RD WORK/NEXT/**MILES/
/TWO WAY/TRAFFIC/AHEAD/
/PAINT/CREW/AHEAD/
/REDUCE/SPEED/**MPH/
/BRIDGE/WORK/***0 FT/
/MAX/SPEED/**MPH/
/SURVEY/PARTY/AHEAD/
/MIN/SPEED/**MPH/
/ICY/BRIDGE/AHEAD/ /ONE LANE/BRIDGE/AHEAD/
/ROUGH/ROAD/AHEAD/
/MERGING/TRAFFIC/AHEAD/
/NEXT/***/MILES/
/HEAVY/TRAFFIC/AHEAD/
/SPEED/LIMIT/**MPH/
/BUMP/AHEAD/
/TWO/WAY/TRAFFIC/

*Insert numerals as directed by the Engineer.
Add other messages during the project when required by the Engineer.

2.3 Power.

1) Design solar panels to yield 10 percent or greater additional charge than sign consumption. Provide direct wiring for operation of the sign or arrow board from an external power source to provide energy backup for 21 days without sunlight and an on-board system charger with the ability to recharge completely discharged batteries in 24 hours.

3.0 CONSTRUCTION. Furnish and operate the variable message signs as designated on the plans or by the Engineer. Ensure the bottom of the message panel is a minimum of 7 feet above the roadway in urban areas and 5 feet above in rural areas when operating. Use Class I, II, or III signs on roads with a speed limit less than 55 mph. Use Class I or II signs on roads with speed limits 55 mph or greater.

Maintain the sign in proper working order, including repair of any damage done by others, until completion of the project. When the sign becomes inoperative, immediately repair or replace the sign. Repetitive problems with the same unit will be cause for rejection and replacement.

Use only project related messages and messages directed by the Engineer, unnecessary messages lessen the impact of the sign. Ensure the message is displayed in either one or 2 phases with each phase having no more than 3 lines of text. When no message is needed, but it is necessary to know if the sign is operable, flash only a pixel.

When the sign is not needed, move it outside the clear zone or where the Engineer directs. Variable Message Signs are the property of the Contractor and shall be removed from the project when no longer needed. The Department will not assume ownership of these signs.

4.0 MEASUREMENT. The final quantity of Variable Message Sign will be

1I

the actual number of individual signs acceptably furnished and operated during the project. The Department will not measure signs replaced due to damage or rejection.

5.0 PAYMENT. The Department will pay for the Variable Message Signs at the unit price each. The Department will not pay for signs replaced due to damage or rejection. Payment is full compensation for furnishing all materials, labor, equipment, and service necessary to, operate, move, repair, and maintain or replace the variable message signs. The Department will make payment for the completed and accepted quantities under the following:

Code	Pay Item	Pay Unit
02671	Portable Changeable Message Sign	Each

Effective June 15, 2012

11F

SPECIAL NOTE FOR TURF REINFORCING MAT

1.0 DESCRIPTION. Install turf reinforcement mat at locations specified in the Contract or as the Engineer directs. Section references herein are to the Department's 2008 Standard Specifications for Road and Bridge Construction.

2.0 MATERIALS.

2.1 Turf Reinforcement Mat (TRM). Use a Turf Reinforcement Mat defined as permanent rolled erosion control product composed of non-degradable synthetic fibers, filaments, nets, wire mesh and/or other elements, processed into a three-dimensional matrix of sufficient thickness and from the Department's List of Approved Materials. Mats must be 100% UV stabilized materials. For TRMs containing degradable components, all physical property values must be obtained on the non-degradable portion of the matting exclusively. Ensure product labels clearly show the manufacturer or supplier name, style name, and roll number. Ensure labeling, shipment and storage follows ASTM D-4873. The Department will require manufacturer to provide TRMs that are machine constructed web of mechanically or melt bonded nondegradable fibers entangled to form a three dimensional matrix. The Department will require all long term performance property values in table below to be based on non degradable portion of the matting alone. Approved methods include polymer welding, thermal or polymer fusion, or placement of fibers between two high strength biaxially oriented nets mechanically bound by parallel stitching with polyolefin thread. Ensure that mats designated in the plans as Type 4 mats, are not to be manufactured from discontinuous or loosely held together by stitching or glued netting or composites. Type 4 mats shall be composed of geosynthetic matrix that exhibits a very high interlock and reinforcement capacities with both soil and root systems and with high tensile modulus. The Department will require manufacturer to use materials chemically and biologically inert to the natural soil environments conditions. Ensure the blanket is smolder resistant without the use of chemical additives. When stored, maintain the protective wrapping and elevate the mats off the ground to protect them from damage. The Department will not specify these materials for use in heavily acidic coal seam areas or other areas with soil problems that would severally limit vegetation growth.

A) Dimensions. Ensure TRMs are furnished in strips with a minimum width of 4 feet and length of 50 feet.
B) Weight. Ensure that all mat types have a minimum mass per unit area of 7 ounces per square yard according to ASTM D 6566.
C) Performance Testing: The Department will require AASHTO's NTPEP index testing. The Department will also require the manufacturer to perform internal MARV testing at a Geosynthetic Accreditation Institute – Laboratory Accreditation Program (GAI-LAP) accredited laboratory for tensile strength, tensile elongation, mass per unit area, and thickness once every 24,000 yds of production or whatever rate is required to ensure 97.7% confidence under ASTM D4439& 4354. The Department will require Full scale testing for slope and channel applications shear stress shall be done under ASTM D 6459, ASTM D 6460-07 procedures.

2.2 Classifications

The basis for selection of the type of mat required will be based on the long term shear stress level of the mat of the channel in question or the degree of slope to protect and will be designated in the contract. The Type 4 mats are to be used at structural backfills protecting critical

11F

structures, utility cuts, areas where vehicles may be expected to traverse the mat, channels with large heavy drift, and where higher factors of safety, very steep slopes and/or durability concerns are needed as determined by project team and designer and will be specified in the plans by designer.

Turf Reinforcement Matting					
Properties[1]	Type 1	Type 2	Type 3	Type 4	Test Method
Minimum tensile Strength lbs/ft	125	150	175	3000 by 1500	ASTM D6818[2]
UV stability (minimum % tensile retention)	80	80	80	90	ASTM D4355[3] (1000-hr exposure)
Minimum thickness (inches)	0.25	0.25	0.25	0.40	ASTM D6525
Slopes applications	2H:1V or flatter	1.5H:1V or flatter	1H:1V or flatter	1 H: 1V or greater	
Shear stress lbs/ft^2 Channel applications	6.0[4]	8.0[4]	10.0[4]	12.0[4]	ASTM D6459 ASTM D6460-07

[1] For TRMs containing degradable components, all physical property values must be obtained on the non-degradable portion of the matting alone.
[2]Minimum Average Roll Values for tensile strength of sample material machine direction.
[3]Tensile Strength percentage retained after stated 1000 hr duration of exposure under ASTM D4355 testing. Based on nondegradable components exclusively.
[4]Maximum permissible shear design values based on short-term (0.5 hr) vegetated data obtained by full scale flume testing ASTM D6459, D6460-07. Based on nondegradable components exclusively. Testing will be done at Independent Hydraulics Facility such as Colorado State University hydraulics laboratory, Utah State University hydraulics laboratory, Texas Transportation Institute (TTI) hydraulics and erosion control laboratory.

2.3 Quality Assurance Sampling, Testing, and Acceptance

A) Provide TRM listed on the Department's List of Approved Materials. Prior to inclusion on the LAM, the manufacturer of TRM must meet the physical and performance criteria as outlined in the specification and submit a Letter Certifying compliance of the product under the above ASTM testing procedures and including a copy of report from Full Scale Independent Hydraulics Facility that Fully Vegetated Shear Stress meets shear stress requirements tested under D6459 and D6460-07.

B) Contractors will provide a Letter of Certification from Manufacturer stating the product name, manufacturer, and that the product MARV product unit testing results meets Department criteria. Provide Letters once per project and for each product.

C) Acceptance shall be in accordance with ASTM D-4759 based on testing performed by a Geosynthetic Accreditation Institute – Laboratory Accreditation Program (GAI-LAP) accredited laboratory using Procedure A of ASTM D-4354.

Current mats meeting the above criteria are shown on the Department's List of Approved Materials.

2.4 Fasteners. When the mat manufacturer does not specify a specific fastener, use steel wire U-shaped staples with a minimum diameter of 0.09 inches (11 gauge), a minimum width of one inch and a minimum length of 12 inches. Use a heavier gauge when working in rocky or clay soils and longer lengths in sandy soils as directed by Engineer or Manufacturer's Representative. Provide staples with colored tops when requested by the Engineer.

3.0 CONSTRUCTION. When requested by the Engineer, provide a Manufacturer's Representative on-site to oversee and approve the initial installation of the mat. When requested by the Engineer, provide a letter from the Manufacturer approving the installation. When there is a conflict between the Department's criteria and the Manufacturer's criteria, construct using the more restrictive. The Engineer and Manufacturer's Representative must approve all alternate installation methods prior to execution. Construct according to the Manufacturer's recommendations and the following as minimum installation technique:

3.1 Site Preparation. Grade areas to be treated with matting and compact. Remove large rocks, soil clods, vegetation, roots, and other sharp objects that could keep the mat from intimate contact with subgrade. Prepare seedbed by loosening the top 2 to 3 inch of soil.

3.2 Installation. Install mats according to Standard Drawing Sepias "Turf Mat Channel Installation" and "Turf Mat Slope Installation." Install mats at the specified elevation and alignment. Anchor the mats with staples with a minimum length of 12 inches. Use longer anchors for installations in sandy, loose, or wet soils as directed by the Engineer or Manufacturer's Representative. The mat should be in direct contact with the soil surface.

4.0 MEASUREMENT. The Department will measure the quantity of Turf Reinforcement Mat by the square yard of surface covered. The Department will not measure preparation of the bed, providing a Manufacturer's Representative, topsoil, or seeding for payment and will consider them incidental to the Turf Reinforcement Mat. The Department will not measure any reworking of slopes or channels for payment as it is considered corrective work and incidental to the Turf Reinforcement Mat. Seeding and protection will be an incidental item.

5.0 PAYMENT. The Department will make payment for the completed and accepted quantities under the following:

Code	Pay Item	Pay Unit
23274EN11F	Turf Reinforcement Mat 1	Square Yard
23275EN11F	Turf Reinforcement Mat 2	Square Yard
23276EN11F	Turf Reinforcement Mat 3	Square Yard
23277EN11F	Turf Reinforcement Mat 4	Square Yard

SPECIAL NOTE FOR BARCODE LABEL ON PERMANENT SIGNS

1.0 DESCRIPTION. Install barcode label on sign as specified in the Contract. Section references herein are to the Department's 2012 Standard Specifications for Road and Bridge Construction.

2.0 MATERIALS. The Department will provide the Contractor with a 2 inch x 1 inch foil barcode label for each permanent sign. A unique number will be assigned to each barcode label.

The Contractor shall contact the Operations and Pavement Management Branch in the Division of Maintenance at (502) 564-4556 to obtain the barcode labels.

3.0 CONSTRUCTION. Apply foil barcode label in the lower right quadrant of the sign back. Signs where the bottom edge is not parallel to the ground, the lowest corner of the sign shall serve as the location to place the barcode label. The barcode label shall be placed no less than one-inch and no more than three inches from any edge of the sign. The barcode must be placed so that the sign post does not cover the barcode label.

Barcodes shall be applied in an indoor setting with a minimum air temperature of 50°F or higher. Prior to application of the barcode label, the back of the sign must be clean and free of dust, oil, etc. If the sign is not clean, an alcohol swab shall be used to clean the area. The area must be allowed to dry prior to placement of the barcode label.

Data for each sign shall include the barcode number, MUTCD reference number, sheeting manufacturer, sheeting type, manufacture date, color of primary reflective surface, installation date, latitude and longitude using the North American Datum of 1983 (NAD83) or the State Plane Coordinates using an x and y ordinate of the installed location.

Data should be provided electronically on the TC 71-229 Sign Details Information and TC 71-230 Sign Assembly Information forms. The Contractor may choose to present the data in a different format provided that the information submitted to the Department is equivalent to the information required on the Department TC forms. The forms must be submitted in electronic format regardless of which type of form is used. The Department will not accept PDF or handwritten forms. These completed forms must be submitted to the Department prior to final inspection of the signs. The Department will not issue formal acceptance for the project until the TC 71-229 and TC-230 electronic forms are completed for all signs and sign assemblies on the project.

4.0 MEASUREMENT. The Department will measure all work required for the installation of the barcode label and all work associated with completion and submission of the sign inventory data (TC 71-229 and TC 71-230).

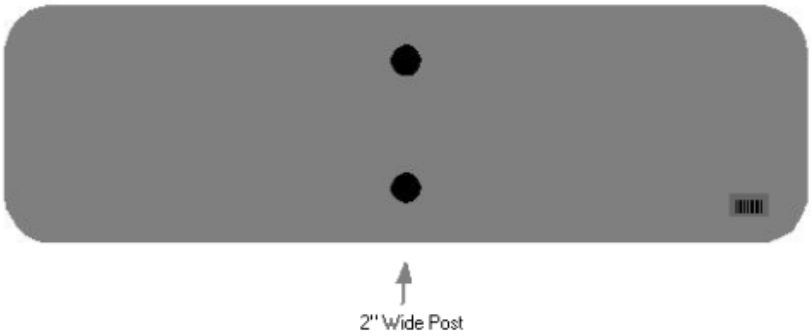
The installation of the permanent sign will be measured in accordance to Section 715.

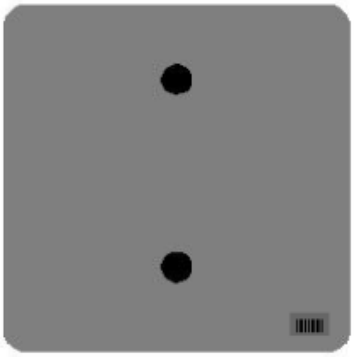
5.0 PAYMENT. The Department will make payment for the completed and accepted quantities under the following:

Code	Pay Item	Pay Unit
24631EC	Barcode Sign Inventory	Each

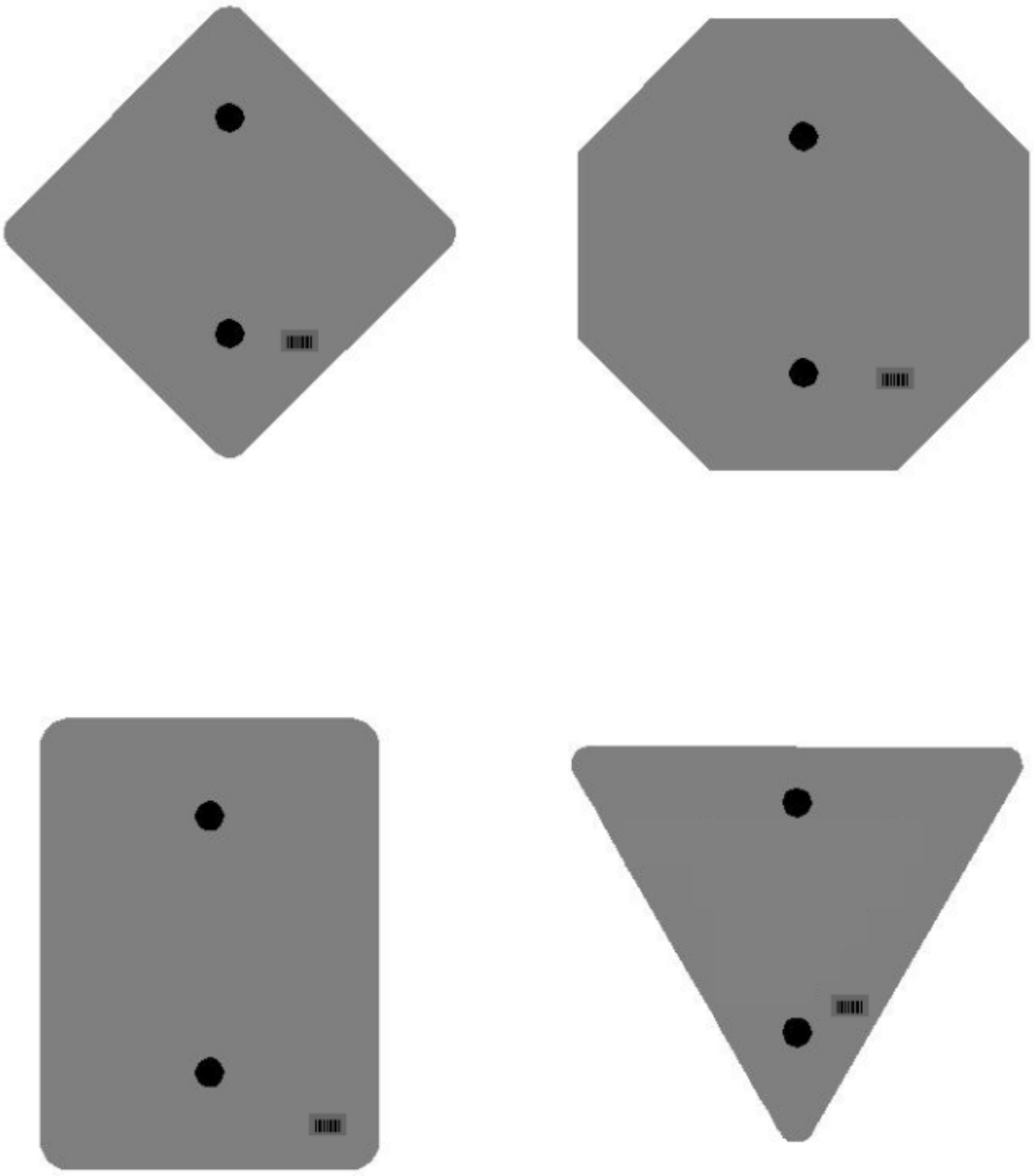
The Department will not make payment for this item until all barcodes are installed and sign inventory is complete on every permanent sign installed on the project. The Department will make payment for installation of the permanent sign in accordance to Section 715. The Department will consider payment as full compensation for all work required under this special note.

One Sign Post

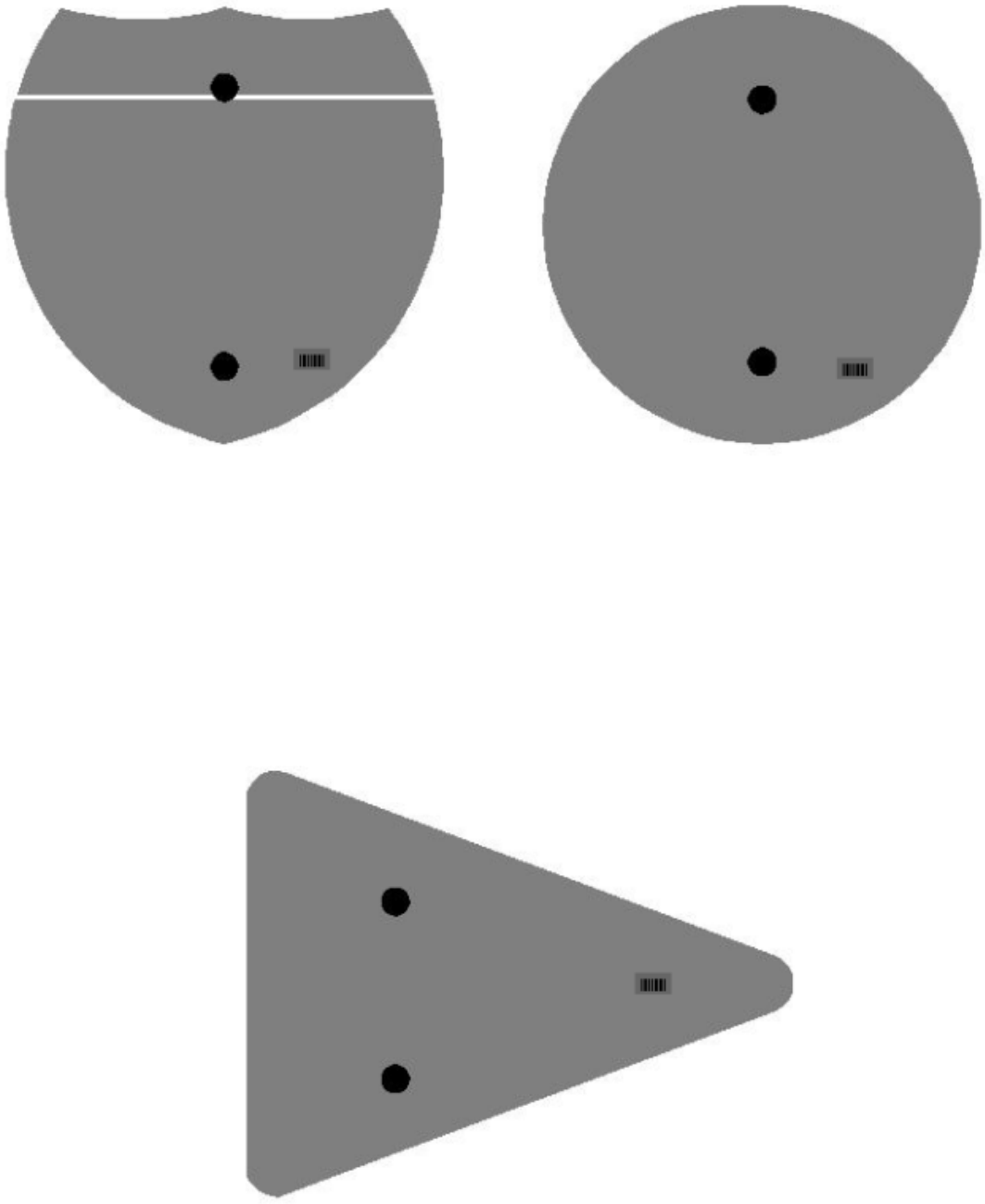




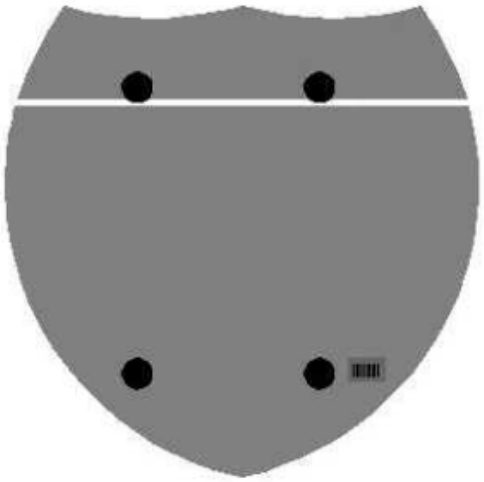
One Sign Post



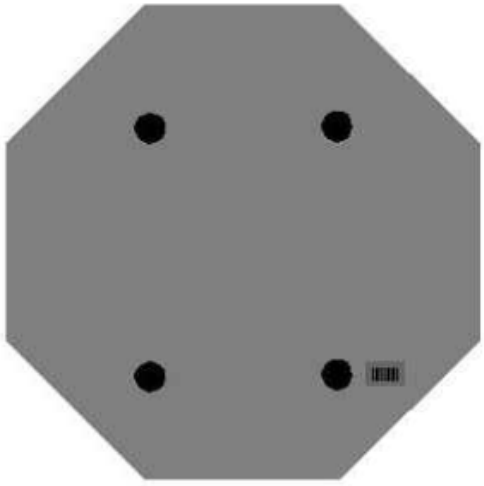
One Sign Post



Double Sign Post

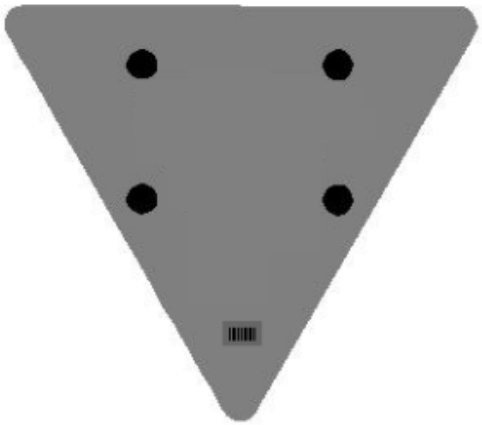


Interstate
Shield



48" Stop

2 Post Signs



PART III

EMPLOYMENT, WAGE AND RECORD REQUIREMENTS

FHWA-1273 -- Revised May 1, 2012

REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding $10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under

this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are

applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurance Required by 49 CFR 26.13(b):

a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor

will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding $2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 “Contract provisions and related matters” with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages

a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH–1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b.(1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or

will notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and basic records

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b.(1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g. , the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division Web site at http://www.dol.gov/esa/whd/forms/wh347instr.htm or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency..

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH–347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and trainees

a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

6. Subcontracts. The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility.

a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The following clauses apply to any Federal-aid construction contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.

3. Withholding for unpaid wages and liquidated damages. The FHWA or the contacting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term “perform work with its own organization” refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

(1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
(2) the prime contractor remains responsible for the quality of the work of the leased employees;
(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and
(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.
2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost $25,000 or more – as defined in 2 CFR Parts 180 and 1200.

1**. Instructions for Certification – First Tier Participants:**

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. “First Tier Covered Transactions” refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

2. **Instructions for Certification - Lower Tier Participants:**

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost $25,000 or more - 2 CFR Parts 180 and 1200)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. “First Tier Covered Transactions” refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the

department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000 (49 CFR 20).

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

ATTACHMENT A - EMPLOYMENT AND MATERIALS PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS ROAD CONTRACTS

This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

KENTUCKY TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS

EMPLOYMENT REQUIREMENTS
RELATING TO
NONDISCRIMINATION OF EMPLOYEES
(APPLICABLE TO FEDERAL-AID SYSTEM CONTRACTS)

AN ACT OF THE KENTUCKY GENERAL ASSEMBLY TO PREVENT DISCRIMINATION IN EMPLOYMENT

KRS CHAPTER 344
EFFECTIVE JUNE 16, 1972

The contract on this project, in accordance with KRS Chapter 344, provides that during the performance of this contract, the contractor agrees as follows:

1. The contractor shall not fail or refuse to hire, or shall not discharge any individual, or otherwise discriminate against an individual with respect to his compensation, terms, conditions, or privileges of employment, because of such individual's race, color, religion, national origin, sex, disability or age (between forty and seventy); or limit, segregate, or classify his employees in any way which would deprive or tend to deprive an individual of employment opportunities or otherwise adversely affect his status as an employee, because of such individual's race, color, religion, national origin, sex, disability or age (between forty and seventy). The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

2. The contractor shall not print or publish or cause to be printed or published a notice or advertisement relating to employment by such an employer or membership in or any classification or referral for employment by the employment agency, indicating any preference, limitation, specification, or discrimination, based on race, color, religion, national origin, sex, disability or age (between forty and seventy), except that such notice or advertisement may indicate a preference, limitation, or specification based on religion, or national origin when religion, or national origin is a bona fide occupational qualification for employment.

3. If the contractor is in control of apprenticeship or other training or retraining, including on-the-job training programs, he shall not discriminate against an individual because of his race, color, religion, national origin, sex, disability or age (between forty and seventy), in admission to, or employment in any program established to provide apprenticeship or other training.

4. The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representative of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment. The contractor will take such action with respect to any subcontract or purchase order as the administrating agency may direct as a means of enforcing such provisions, including sanctions for non-compliance.

REVISED: 12-3-92

EXECUTIVE BRANCH CODE OF ETHICS

In the 1992 regular legislative session, the General Assembly passed and Governor Brereton Jones signed Senate Bill 63 (codified as KRS 11A), the Executive Branch Code of Ethics, which states, in part:

> KRS 11A.040 (6) provides:
>
> No present or former public servant shall, within six (6) months of following termination of his office or employment, accept employment, compensation or other economic benefit from any person or business that contracts or does business with the state in matters in which he was directly involved during his tenure. This provision shall not prohibit an individual from returning to the same business, firm, occupation, or profession in which he was involved prior to taking office or beginning his term of employment, provided that, for a period of six (6) months, he personally refrains from working on any matter in which he was directly involved in state government. This subsection shall not prohibit the performance of ministerial functions, including, but not limited to, filing tax returns, filing applications for permits or licenses, or filing incorporation papers.
>
> KRS 11A.040 (8) states:
>
> A former public servant shall not represent a person in a matter before a state agency in which the former public servant was directly involved, for a period of one (1) year after the latter of:
> a) The date of leaving office or termination of employment; or
> b) The date the term of office expires to which the public servant was elected.

This law is intended to promote public confidence in the integrity of state government and to declare as public policy the idea that state employees should view their work as a public trust and not as a way to obtain private benefits.

If you have worked for the executive branch of state government within the past six months, you may be subject to the law's prohibitions. The law's applicability may be different if you hold elected office or are contemplating representation of another before a state agency.

Also, if you are affiliated with a firm which does business with the state and which employs former state executive-branch employees, you should be aware that the law may apply to them.

In case of doubt, the law permits you to request an advisory opinion from the Executive Branch Ethics Commission, Room 136, Capitol Building, 700 Capitol Avenue, Frankfort, Kentucky 40601; telephone (502) 564-7954.

General Decision Number: KY140102 08/01/2014 KY102

Superseded General Decision Number: KY20130102

State: Kentucky

Construction Type: Highway

Counties: Allen, Ballard, Butler, Caldwell, Calloway, Carlisle, Christian, Crittenden, Daviess, Edmonson, Fulton, Graves, Hancock, Henderson, Hickman, Hopkins, Livingston, Logan, Lyon, Marshall, McCracken, McLean, Muhlenberg, Ohio, Simpson, Todd, Trigg, Union, Warren and Webster Counties in Kentucky.

HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects & railroad construction; bascule, suspension & spandrel arch bridges designed for commercial navigation, bridges involving marine construction; and other major bridges).

Modification Number	Publication Date
0	01/03/2014
1	04/04/2014
2	04/18/2014
3	05/16/2014
4	05/23/2014
5	06/06/2014
6	07/04/2014
7	07/18/2014
8	08/01/2014

BRIN0004-002 06/01/2013

BALLARD, BUTLER, CALDWELL, CARLISLE, CRITTENDEN, DAVIESS, EDMONSON, FULTON, GRAVES, HANCOCK, HENDERSON, HICKMAN, HOPKINS, LIVINGSTON, LYON, MARSHALL, MCCRACKEN, MCLEAN, MUHLENBERG, OHIO, UNION, and WEBSTER COUNTIES

	Rates	Fringes
BRICKLAYER		
Ballard, Caldwell, Carlisle, Crittenden, Fulton, Graves, Hickman, Livingston, Lyon, Marshall, and McCracken Counties	$ 24.11	10.30
Butler, Edmonson, Hopkins, Muhlenberg, and Ohio Counties	$ 24.61	10.22
Daviess, Hancock, Henderson, McLean, Union, and Webster Counties	$ 28.68	13.72

BRTN0004-005 05/01/2009

ALLEN, CALLOWAY, CHRISTIAN, LOGAN, SIMPSON, TODD, TRIGG, and
WARREN COUNTIES

	Rates	Fringes
BRICKLAYER	$ 24.52	1.83

CARP0357-002 04/01/2014

	Rates	Fringes
CARPENTER	$ 27.50	14.92
Diver	$ 41.63	14.92
PILEDRIVERMAN	$ 27.75	14.92

ELEC0369-006 05/29/2013

BUTLER, EDMONSON, LOGAN, TODD & WARREN COUNTIES:

	Rates	Fringes
ELECTRICIAN	$ 29.48	14.37

ELEC0429-001 02/01/2010

ALLEN & SIMPSON COUNTIES:

	Rates	Fringes
ELECTRICIAN	$ 21.85	10.35

ELEC0816-002 06/01/2014

BALLARD, CALDWELL, CALLOWAY, CARLISLE, CHRISTIAN, CRITTENDEN,
FULTON (Except a 5 mile radius of City Hall in Fulton), GRAVES,
HICKMAN, LIVINGSTON, LYON, MARSHALL, MCCRACKEN & TRIGG COUNTIES:

	Rates	Fringes
ELECTRICIAN	$ 30.82	25.5%+5.85

Cable spicers receive $.25 per hour additional.

ELEC1701-003 06/01/2013

DAVIESS, HANCOCK, HENDERSON, HOPKINS, MCLEAN, MUHLENBERG, OHIO,
UNION & WEBSTER COUNTIES:

	Rates	Fringes
ELECTRICIAN	$ 30.03	13.72

Cable spicers receive $.25 per hour additional.

ELEC1925-002 06/01/2014

FULTON COUNTY (Up to a 5 mile radius of City Hall in Fulton):

	Rates	Fringes
CABLE SPLICER	$ 25.00	10.27
ELECTRICIAN	$ 24.80	11.01

ENGI0181-017 07/01/2014

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
GROUP 1	$ 28.85	14.15
GROUP 2	$ 26.24	14.15
GROUP 3	$ 26.65	14.15
GROUP 4	$ 25.95	14.15

OPERATING ENGINEER CLASSIFICATIONS

GROUP 1 - A-Frame Winch Truck; Auto Patrol; Backfiller; Batcher Plant; Bituminous Paver; Bituminous Transfer Machine; Boom Cat; Bulldozer; Mechanic; Cableway; Carry-All Scoop; Carry Deck Crane; Central Compressor Plant; Cherry Picker; Clamshell; Concrete Mixer (21 cu. ft. or Over); Concrete Paver; Truck-Mounted Concrete Pump; Core Drill; Crane; Crusher Plant; Derrick; Derrick Boat; Ditching & Trenching Machine; Dragline; Dredge Operator; Dredge Engineer; Elevating Grader & Loaders; Grade-All; Gurries; Heavy Equipment Robotics Operator/Mechanic; High Lift; Hoe-Type Machine; Hoist (Two or More Drums); Hoisting Engine (Two or More Drums); Horizontal Directional Drill Operator; Hydrocrane; Hyster; KeCal Loader; LeTourneau; Locomotive; Mechanic; Mechanically Operated Laser Screed; Mechanic Welder; Mucking Machine; Motor Scraper; Orangepeel Bucket; Overhead Crane; Piledriver; Power Blade; Pumpcrete; Push Dozer; Rock Spreader, attached to equipment; Rotary Drill; Roller (Bituminous); Rough Terrain Crane; Scarifier; Scoopmobile; Shovel; Side Boom; Subgrader; Tailboom; Telescoping Type Forklift; Tow or Push Boat; Tower Crane (French, German & other types); Tractor Shovel; Truck Crane; Tunnel Mining Machines, including Moles, Shields or similar types of Tunnel Mining Equipment

GROUP 2 - Air Compressor (Over 900 cu. ft. per min.); Bituminous Mixer; Boom Type Tamping Machine; Bull Float; Concrete Mixer (Under 21 cu. ft.); Dredge Engineer; Electric Vibrator; Compactor/Self-Propelled Compactor; Elevator (One Drum or Buck Hoist); Elevator (When used to Hoist Building Material); Finish Machine; Firemen & Hoist (One Drum); Flexplane; Forklift (Regardless of Lift Height); Form Grader; Joint Sealing Machine; Outboard Motor Boat; Power Sweeper (Riding Type); Roller (Rock); Ross Carrier; Skid Mounted or Trailer Mounted Conrete Pump; Skid Steer Machine with all Attachments; Switchman or Brakeman; Throttle Valve Person; Tractair & Road Widening Trencher; Tractor (50 H.P. or Over); Truck Crane Oiler; Tugger; Welding Machine; Well Points;& Whirley Oiler

GROUP 3 -All Off Road Material Handling Equipment, including Articulating Dump Trucks; Greaser on Grease Facilities servicing Heavy Equipment

GROUP 4 - Bituminous Distributor; Burlap & Curing Machine; Cement Gun; Concrete Saw; Conveyor; Deckhand Oiler; Grout Pump; Hydraulic Post Driver; Hydro Seeder; Mud Jack; Oiler; Paving Joint Machine; Power Form Handling Equipment; Pump; Roller (Earth); Steerman; Tamping Machine; Tractor (Under 50 H.P.); & Vibrator

CRANES - with booms 150 ft. & Over (Including JIB), and where the length of the boom in combination with the length of the piling equals or exceeds 150 ft. - $1.00 above Group 1 rate

EMPLOYEES ASSIGNED TO WORK BELOW GROUND LEVEL ARE TO BE PAID 10% ABOVE BASIC WAGE RATE. THIS DOES NOT APPLY TO OPEN CUT WORK.

IRON0070-005 06/01/2014

BUTLER COUNTY (Eastern eighth, including the Townships of Decker, Lee & Tilford);
EDMONSON COUNTY (Northern three-fourths, including the Townships of Asphalt, Bee Spring, Brownsville, Grassland, Huff, Kyrock, Lindseyville, Mammoth Cave, Ollie, Prosperity, Rhoda, Sunfish & Sweden)

	Rates	Fringes
IRONWORKER		
Structural; Ornamental; Reinforcing; Precast Concrete Erectors	$ 26.97	19.75

IRON0103-004 04/01/2013

DAVIESS, HANCOCK, HENDERSON, HOPKINS, MCLEAN, OHIO, UNION & WEBSTER COUNTIES
BUTLER COUNTY (Townships of Aberdeen, Bancock, Casey, Dexterville, Dunbar, Elfie, Gilstrap, Huntsville, Logansport, Monford, Morgantown, Provo, Rochester, South Hill & Welchs Creek);
CALDWELL COUNTY (Northeastern third, including the Township of Creswell);
CHRISTIAN COUNTY (Northern third, including the Townships of Apex, Crofton, Kelly, Mannington & Wynns);
CRITTENDEN COUNTY (Northeastern half, including the Townships of Grove, Mattoon, Repton, Shady Grove & Tribune);
MUHLENBERG COUNTY (Townships of Bavier, Beech Creek Junction, Benton, Brennen, Browder, Central City, Cleaton, Depoy, Drakesboro, Eunis, Graham, Hillside, Luzerne, Lynn City, Martwick, McNary, Millport, Moorman, Nelson, Paradise, Powderly, South Carrollton, Tarina & Weir)

	Rates	Fringes
Ironworkers	$ 27.82	16.555

IRON0492-003 05/01/2013

ALLEN, LOGAN, SIMPSON, TODD & WARREN COUNTIES
BUTLER COUNTY (Southern third, including the Townships of Boston, Berrys Lick, Dimple, Jetson, Quality, Sharer, Sugar Grove & Woodbury);
CHRISTIAN COUNTY (Eastern two-thirds, including the Townships of Bennettstown, Casky, Herndon, Hopkinsville, Howell, Masonville, Pembroke & Thompsonville);
EDMONSON COUNTY (Southern fourth, including the Townships of Chalybeate & Rocky Hill);
MUHLENBERG COUNTY (Southern eighth, including the Townships of Dunnior, Penrod & Rosewood)

	Rates	Fringes
Ironworkers:	$ 23.84	10.96

---

* IRON0782-006 05/01/2014

BALLARD, CALLOWAY, CARLISLE, FULTON, GRAVES, HICKMAN, LIVINGSTON, LYON, MARSHALL, MCCRACKEN & TRIGG COUNTIES
CALDWELL COUNTY (Southwestern two-thirds, including the Townships of Cedar Bluff, Cider, Claxton, Cobb, Crowtown, Dulaney, Farmersville, Fredonia, McGowan, Otter Pond & Princeton);
CHRISTIAN COUNTY (Western third, Excluding the Townships of Apex, Crofton, Kelly, Mannington, Wynns, Bennettstown, Casky, Herndon, Hopkinsville, Howell, Masonville, Pembroke & Thompsonville);
CRITTENDEN COUNTY (Southwestern half, including the Townships of Crayne, Dycusburg, Frances, Marion, Mexico, Midway, Sheridan & Told)

	Rates	Fringes
Ironworkers:		
Projects with a total contract cost of $20,000,000.00 or above	$ 27.09	20.66
All Other Work	$ 25.50	19.02

LABO0189-005 07/01/2014

BALLARD, CALLOWAY, CARLISLE, FULTON, GRAVES, HICKMAN, LIVINGSTON, LYON, MARSHALL & MCCRACKEN COUNTIES

	Rates	Fringes
Laborers:		
GROUP 1	$ 21.50	12.26
GROUP 2	$ 21.75	12.26
GROUP 3	$ 21.80	12.26
GROUP 4	$ 22.40	12.26

LABORER CLASSIFICATIONS

GROUP 1 - Aging & Curing of Concrete; Asbestos Abatement Worker; Asphalt Plant; Asphalt; Batch Truck Dump; Carpenter Tender; Cement Mason Tender; Cleaning of Machines; Concrete; Demolition; Dredging; Environmental - Nuclear, Radiation, Toxic & Hazardous Waste - Level D; Flagperson; Grade Checker; Hand Digging & Hand Back Filling; Highway Marker Placer; Landscaping, Mesh Handler & Placer; Puddler; Railroad; Rip-rap & Grouter; Right-of-Way; Sign, Guard Rail & Fence Installer; Signal Person; Sound Barrier Installer; Storm & Sanitary Sewer; Swamper; Truck Spotter & Dumper; Wrecking of Concrete Forms; General Cleanup

GROUP 2 - Batter Board Man (Sanitary & Storm Sewer); Brickmason Tender; Mortar Mixer Operator; Scaffold Builder; Burner & Welder; Bushammer; Chain Saw Operator; Concrete Saw Operator; Deckhand Scow Man; Dry Cement Handler; Environmental - Nuclear, Radiation, Toxic & Hazardous Waste - Level C; Forklift Operator for Masonary; Form Setter; Green Concrete Cutting; Hand Operated Grouter & Grinder Machine Operator; Jackhammer; Pavement Breaker; Paving Joint Machine; Pipelayer; Plastic Pipe Fusion; Power Driven Georgia Buggy & Wheel Barrow; Power Post Hole Digger; Precast Manhole Setter; Walk-Behind Tamper; Walk-Behind Trencher; Sand Blaster; Concrete Chipper; Surface Grinder; Vibrator Operator; Wagon Driller

GROUP 3 - Asphalt Luteman & Raker; Gunnite Nozzleman; Gunnite Operator & Mixer; Grout Pump Operator; Blaster; Side Rail Setter; Rail Paved Ditches; Screw Operator; Tunnel (Free Air); Water Blaster

GROUP 4 - Caisson Worker (Free Air); Cement Finisher; Environmental - Nuclear, Radiation, Toxic & Hazardous Waste - Levels A & B; Miner & Driller (Free Air); Tunnel Blaster; & Tunnel Mucker (Free Air); Directional & Horizontal Boring; Air Track Drillers (All Types); Powdermen & Blasters; Troxler & Concrete Tester if Laborer is Utilized

---

LABO0189-006 07/01/2014

ALLEN, BUTLER, CALDWELL, CHRISTIAN, DAVIESS, EDMONSON, HANCOCK, HOPKINS, LOGAN, MCLEAN, MUHLENBERG, OHIO, SIMPSON, TODD, TRIGG & WARREN COUNTIES

	Rates	Fringes
Laborers:		
GROUP 1	$ 22.66	11.10
GROUP 2	$ 22.91	11.10
GROUP 3	$ 22.96	11.10
GROUP 4	$ 23.56	11.10

LABORER CLASSIFICATIONS

GROUP 1 - Aging & Curing of Concrete; Asbestos Abatement Worker; Asphalt Plant; Asphalt; Batch Truck Dump; Carpenter Tender; Cement Mason Tender; Cleaning of Machines; Concrete; Demolition; Dredging; Environmental - Nuclear,

Radiation, Toxic & Hazardous Waste - Level D; Flagperson; Grade Checker; Hand Digging & Hand Back Filling; Highway Marker Placer; Landscaping, Mesh Handler & Placer; Puddler; Railroad; Rip-rap & Grouter; Right-of-Way; Sign, Guard Rail & Fence Installer; Signal Person; Sound Barrier Installer; Storm & Sanitary Sewer; Swamper; Truck Spotter & Dumper; Wrecking of Concrete Forms; General Cleanup

GROUP 2 - Batter Board Man (Sanitary & Storm Sewer); Brickmason Tender; Mortar Mixer Operator; Scaffold Builder; Burner & Welder; Bushammer; Chain Saw Operator; Concrete Saw Operator; Deckhand Scow Man; Dry Cement Handler; Environmental - Nuclear, Radiation, Toxic & Hazardous Waste - Level C; Forklift Operator for Masonary; Form Setter; Green Concrete Cutting; Hand Operated Grouter & Grinder Machine Operator; Jackhammer; Pavement Breaker; Paving Joint Machine; Pipelayer; Plastic Pipe Fusion; Power Driven Georgia Buggy & Wheel Barrow; Power Post Hole Digger; Precast Manhole Setter; Walk-Behind Tamper; Walk-Behind Trencher; Sand Blaster; Concrete Chipper; Surface Grinder; Vibrator Operator; Wagon Driller

GROUP 3 - Asphalt Luteman & Raker; Gunnite Nozzleman; Gunnite Operator & Mixer; Grout Pump Operator; Blaster; Side Rail Setter; Rail Paved Ditches; Screw Operator; Tunnel (Free Air); Water Blaster

GROUP 4 - Caisson Worker (Free Air); Cement Finisher; Environmental - Nuclear, Radiation, Toxic & Hazardous Waste - Levels A & B; Miner & Driller (Free Air); Tunnel Blaster; & Tunnel Mucker (Free Air); Directional & Horizontal Boring; Air Track Drillers (All Types); Powdermen & Blasters; Troxler & Concrete Tester if Laborer is Utilized

---

LABO0561-001 07/01/2014

CRITTENDEN, HENDERSON, UNION & WEBSTER COUNTIES

	Rates	Fringes
Laborers:		
GROUP 1	$ 21.36	12.65
GROUP 2	$ 21.61	12.65
GROUP 3	$ 21.66	12.65
GROUP 4	$ 22.26	12.65

LABORER CLASSIFICATIONS

GROUP 1 - Aging & Curing of Concrete; Asbestos Abatement Worker; Asphalt Plant; Asphalt; Batch Truck Dump; Carpenter Tender; Cement Mason Tender; Cleaning of Machines; Concrete; Demolition; Dredging; Environmental - Nuclear, Radiation, Toxic & Hazardous Waste - Level D; Flagperson; Grade Checker; Hand Digging & Hand Back Filling; Highway Marker Placer; Landscaping, Mesh Handler & Placer; Puddler; Railroad; Rip-rap & Grouter; Right-of-Way; Sign, Guard Rail & Fence Installer; Signal Person; Sound Barrier Installer; Storm & Sanitary Sewer; Swamper; Truck Spotter & Dumper; Wrecking of Concrete Forms; General Cleanup

GROUP 2 - Batter Board Man (Sanitary & Storm Sewer); Brickmason Tender; Mortar Mixer Operator; Scaffold Builder; Burner & Welder; Bushammer; Chain Saw Operator; Concrete Saw Operator; Deckhand Scow Man; Dry Cement Handler; Environmental - Nuclear, Radiation, Toxic & Hazardous Waste - Level C; Forklift Operator for Masonary; Form Setter; Green Concrete Cutting; Hand Operated Grouter & Grinder Machine Operator; Jackhammer; Pavement Breaker; Paving Joint Machine; Pipelayer; Plastic Pipe Fusion; Power Driven Georgia Buggy & Wheel Barrow; Power Post Hole Digger; Precast Manhole Setter; Walk-Behind Tamper; Walk-Behind Trencher; Sand Blaster; Concrete Chipper; Surface Grinder; Vibrator Operator; Wagon Driller

GROUP 3 - Asphalt Luteman & Raker; Gunnite Nozzleman; Gunnite Operator & Mixer; Grout Pump Operator; Blaster; Side Rail Setter; Rail Paved Ditches; Screw Operator; Tunnel (Free Air); Water Blaster

GROUP 4 - Caisson Worker (Free Air); Cement Finisher; Environmental - Nuclear, Radiation, Toxic & Hazardous Waste - Levels A & B; Miner & Driller (Free Air); Tunnel Blaster; & Tunnel Mucker (Free Air); Directional & Horizontal Boring; Air Track Drillers (All Types); Powdermen & Blasters; Troxler & Concrete Tester if Laborer is Utilized

---

PAIN0032-002 05/01/2013

BALLARD COUNTY

	Rates	Fringes
Painters:		
Bridges	$ 30.56	15.18
All Other Work	$ 28.26	15.18

Spray, Blast, Steam, High & Hazardous (Including Lead Abatement) and All Epoxy - $1.00 Premium

---

PAIN0118-003 06/01/2014

EDMONSON COUNTY:

	Rates	Fringes
Painters:		
Brush & Roller	$ 18.50	12.02
Spray, Sandblast, Power Tools, Waterblast & Steam Cleaning	$ 19.00	12.02

PAIN0156-006 04/01/2014

DAVIESS, HANCOCK, HENDERSON, MCLEAN, OHIO, UNION & WEBSTER COUNTIES

	Rates	Fringes
Painters:		
BRIDGES		
GROUP 1	$ 27.20	12.51
GROUP 2	$ 27.45	12.51
GROUP 3	$ 28.20	12.51
GROUP 4	$ 29.20	12.51
ALL OTHER WORK:		
GROUP 1	$ 26.05	12.51
GROUP 2	$ 26.30	12.51
GROUP 3	$ 27.05	12.51
GROUP 4	$ 28.05	12.51

PAINTER CLASSIFICATIONS

GROUP 1 - Brush & Roller

GROUP 2 - Plasterers

GROUP 3 - Spray; Sandblast; Power Tools; Waterblast; Steamcleaning; Brush & Roller of Mastics, Creosotes, Kwinch Koate & Coal Tar Epoxy

GROUP 4 - Spray of Mastics, Creosotes, Kwinch Koate & Coal Tar Epoxy

---

PAIN0456-003 07/01/2011

ALLEN, BUTLER, LOGAN, MUHLENBERG, SIMPSON, TODD & WARREN COUNTIES:

	Rates	Fringes
Painters:		
BRIDGES		
Brush & Roller	$ 22.55	9.65
Spray; Sandblast; Power Tools; Waterblast & Steam Cleaning	$ 23.55	9.65
ALL OTHER WORK		
Brush & Roller	$ 17.55	9.65
Spray; Sandblast; Power Tools; Waterblast & Steam Cleaning	$ 18.55	9.65

ALL OTHER WORK - HIGH TIME PAY
Over 35 feet (up to 100 feet) - $1.00 above base wage
100 feet and over - $2.00 above base wage

DURING SPRAY PAINTING AND SANDBLASTING OPERATIONS, POT TENDERS SHALL RECEIVE THE SAME WAGE RATES AS THE SPRAY PAINTER OR NOZZLE OPERATOR

PAIN0500-002 06/01/2014

CALDWELL, CALLOWAY, CARLISLE, CHRISTIAN, CRITTENDEN, FULTON,

GRAVES, HICKMAN, HOPKINS, LIVINGSTON, LYON, MARSHALL, MCCRACKEN
& TRIGG COUNTIES:

	Rates	Fringes
Painters:		
Bridges	$ 26.45	12.05
All Other Work	$ 20.20	12.05

Waterblasting units with 3500 PSI and above - $.50 premium
Spraypainting and all abrasive blasting - $1.00 premium
Work 40 ft. and above ground level - $1.00 premium

PLUM0184-002 07/01/2013

BALLARD, CALDWELL, CALLOWAY, CARLISLE, CHRISTIAN, CRITTENDEN,
FULTON, GRAVES, HICKMAN, LIVINGSTON, LYON, MARSHALL, MCCRACKEN
and TRIGG COUNTIES

	Rates	Fringes
Plumber; Steamfitter	$ 33.11	14.83

PLUM0502-004 08/01/2013

ALLEN, BUTLER, EDMONSON, SIMPSON & WARREN

	Rates	Fringes
Plumber; Steamfitter	$ 32.00	17.17

PLUM0633-002 08/01/2013

DAVIESS, HANCOCK, HENDERSON, HOPKINS, LOGAN, MCLEAN,
MUHLENBERG, OHIO, TODD, UNION & WEBSTER COUNTIES:

	Rates	Fringes
PLUMBER/PIPEFITTER	$ 29.87	14.25

TEAM0089-003 03/30/2014

ALLEN, BUTLER, EDMONSON, LOGAN, SIMPSON & WARREN COUNTIES

	Rates	Fringes
Truck drivers:		
Zone 1:		
Group 1	$ 19.58	17.83
Group 2	$ 19.76	17.83
Group 3	$ 19.84	17.83
Group 4	$ 19.86	17.83

GROUP 1 - Greaser; Tire Changer

GROUP 2 - Truck Mechanic; Single Axle Dump; Flat Bed; All

Terrain Vehicles when used to haul materials; Semi Trailer or Pole Trailer when used to pull building materials and equipment; Tandem Axle Dump; Driver of Distributors

GROUP 3 - Mixer All Types

GROUP 4 - Winch and A-Frame when used in transporting materials; Ross Carrier; Fork Lift when used to transport building materials; Driver on Pavement Breaker; Euclid and Other Heavy Earth Moving Equipment; Low Boy; Articulator Cat; Five Axle Vehicle

---

TEAM0215-003 03/31/2013

DAVIESS, HANCOCK, HENDERSON, HOPKINS, MCLEAN, MUHLENBERG, OHIO & WEBSTER COUNTIES

	Rates	Fringes
TRUCK DRIVER		
Group 1	$ 20.93	16.85
Group 2	$ 21.16	16.85
Group 3	$ 21.23	16.85
Group 4	$ 21.24	16.85

GROUP 1: Greaser, Tire Changer

GROUP 2: Truck Mechanic

GROUP 3: Single Axle Dump; Flat Bed; All Terrain Vehicle when used to haul materials; Semi Trailer or Pole Trailer when used to pull building materials and equipment; Tandem Axle Dump; Driver of Distributors; Mixer All Types

GROUP 4: Euclid and other heavy earth moving equipment; Low Boy; Articulator Cat; 5 Axle Vehicle; Winch and A- Frame when used in transporting materials; Ross Carrier; Fork Lift when used to transport building materials; Driver on Pavement Breaker

---

TEAM0236-001 03/31/2013

BALLARD, CALDWELL, CALLOWAY, CARLISLE, CHRISTIAN, CRITTENDEN, FULTON, GRAVES, HICKMAN, LIVINGSTON, LYON, MARSHALL, MCCRACKEN,TODD & TRIGG COUNTIES

	Rates	Fringes
TRUCK DRIVER		
Group 1	$ 19.38	16.85
Group 2	$ 19.56	16.85
Group 3	$ 19.56	16.85
Group 4	$ 19.66	16.85
Group 5	$ 19.64	16.85

GROUP 1: Greaser, Tire Changer

GROUP 2: Truck Mechanic

GROUP 3: Single Axle Dump; Flat Bed; All Terrain Vehicle when used to haul materials; Semi Trailer or Pole Trailer when used to pull building materials and equipment; Tandem Axle Dump; Drivers of Distributors

GROUP 4: Euclid and other heavy earth moving equipment; Low Boy; Articulator Cat; Five Axle Vehicle; Winch and A-Frame when used in transporting materials; Ross Carrier

GROUP 5: Mixer All Types

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

==========

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is union or non-union.

Union Identifiers

An identifier enclosed in dotted lines beginning with characters other than "SU" denotes that the union classification and rate have found to be prevailing for that classification. Example: PLUM0198-005 07/01/2011. The first four letters , PLUM, indicate the international union and the four-digit number, 0198, that follows indicates the local union number or district council number where applicable , i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2011, following these characters is the effective date of the most current negotiated rate/collective bargaining agreement which would be July 1, 2011 in the above example.

Union prevailing wage rates will be updated to reflect any changes in the collective bargaining agreements governing the rates.

0000/9999: weighted union wage rates will be published annually

each January.

Non-Union Identifiers

Classifications listed under an "SU" identifier were derived from survey data by computing average rates and are not union rates; however, the data used in computing these rates may include both union and non-union data. Example: SULA2004-007 5/13/2010. SU indicates the rates are not union majority rates, LA indicates the State of Louisiana; 2004 is the year of the survey; and 007 is an internal number used in producing the wage determination. A 1993 or later date, 5/13/2010, indicates the classifications and rates under that identifier were issued as a General Wage Determination on that date.

Survey wage rates will remain in effect and will not change until a new survey is conducted.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.

Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

==========

END OF GENERAL DECISION

Fringe benefit amounts are applicable for all hours worked except when otherwise noted.

These rates are listed pursuant to the Kentucky Determination No. CR-14-I-HWY dated July 14, 2014.

No laborer, workman or mechanic shall be paid at a rate less than that of a Journeyman except those classified as bona fide apprentices.

Apprentices or trainees shall be permitted to work as such subject to Administrative Regulations adopted by the Commissioner of Workplace Standards. Copies of these regulations will be furnished upon request from any interested person.

Before using apprentices on the job the contractor shall present to the Contracting Officer written evidence of registration of such employees in a program of a State apprenticeship and training agency approved and recognized by the U. S. Bureau of Apprenticeship and Training. In the absence of such a State agency, the contractor shall submit evidence of approval and registration by the U. S. Bureau of Apprenticeship and Training.

The contractor shall submit to the Contracting Officer, written evidence of the established apprenticeship-journeyman ratios and wage rates in the project area, which will be the basis for establishing such ratios and rates for the project under the applicable contract provisions.

TO: EMPLOYERS/EMPLOYEES

PREVAILING WAGE SCHEDULE:

The wages indicated on this wage schedule are the least permitted to be paid for the occupations indicated. When an employee works in more than one classification, the employer must record the number of hours worked in each classification at the prescribed hourly base rate.

OVERTIME:

Overtime is to be paid after an employee works eight (8) hours a day or forty (40) hours a week, whichever gives the employee the greater wages. At least time and one-half the base rate is required for all overtime. A laborer, workman or mechanic and an employer may enter into a written agreement or a collective bargaining agreement to work more than eight (8) hours a calendar day but not more than ten (10) hours a calendar day for the straight time hourly rate. Wage violations or questions should be directed to the designated Engineer or the undersigned.

Diana Castle Radcliffe, P.E.
Director, Division of Construction Procurement
Frankfort, Kentucky 40622

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (Executive Order 11246)

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate work force in each trade on all construction work in the covered area, are as follows:

GOALS FOR MINORITY PARTICIPATION IN EACH TRADE	GOALS FOR FEMALE PARTICIPATION IN EACH TRADE
12.0%	6.9%

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally-assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and non-federally involved construction.

The Contractor's compliance with the Executive Order and the regulations in CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4, 3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within ten (10) working days of award of any construction subcontract in excess of $10,000.00 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed. The notification shall be mailed to:

Evelyn Teague, Regional Director
Office of Federal Contract Compliance Programs
61 Forsyth Street, SW, Suite 7B75
Atlanta, Georgia 30303-8609

4. As used in this Notice, and in the contract resulting from this solicitation, the **"covered area"** is Butler County.

PART IV

INSURANCE

INSURANCE

The Contractor shall procure and maintain the following insurance in addition to the insurance required by law:

1) Commercial General Liability-Occurrence form – not less than $2,000,000 General aggregate, $2,000,000 Products & Completed Aggregate, $1,000,000 Personal & Advertising, $1,000,000 each occurrence.

2) Automobile Liability- $1,000,000 per accident

3) Employers Liability:

   a) $100,000 Each Accident Bodily Injury
   b) $500,000 Policy limit Bodily Injury by Disease
   c) $100,000 Each Employee Bodily Injury by Disease

4) The insurance required above must be evidenced by a Certificate of Insurance and this Certificate of Insurance must contain one of the following statements:
   a) "policy contains no deductible clauses."
   b) "policy contains _____ (amount) deductible property damage clause but company will pay claim and collect the deductible from the insured."

5) KENTUCKY WORKMEN'S COMPENSATION INSURANCE. The contractor shall furnish evidence of coverage of all his employees or give evidence of self-insurance by submitting a copy of a certificate issued by the Workmen's Compensation Board.

The cost of insurance is incidental to all contract items. All subcontractors must meet the same minimum insurance requirements.

PART V

BID ITEMS

PROPOSAL BID ITEMS

141050

Report Date 9/4/14

Section: 0001 - PAVING

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
0010	00003		CRUSHED STONE BASE	2,692.00	TON		$	
0020	00190		LEVELING & WEDGING PG64-22	200.00	TON		$	
0030	00212		CL2 ASPH BASE 1.00D PG64-22	3,244.00	TON		$	
0040	00307		CL2 ASPH SURF 0.38B PG64-22	667.00	TON		$	
0050	02099		CEM CONC ENT PAVEMENT-6 IN	183.00	SQYD		$	
0060	02101		CEM CONC ENT PAVEMENT-8 IN	1,160.00	SQYD		$	
0070	02676		MOBILIZATION FOR MILL & TEXT	1.00	LS		$	
0080	02677		ASPHALT PAVE MILLING & TEXTURING	100.00	TON		$	

Section: 0002 - ROADWAY

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
0090	00078		CRUSHED AGGREGATE SIZE NO 2	1,200.00	TON		$	
0100	01314		PLUG PIPE	1.00	EACH		$	
0110	01811		STANDARD CURB AND GUTTER MOD	2,153.00	LF		$	
0120	01875		STANDARD HEADER CURB	31.00	LF		$	
0130	01984		DELINEATOR FOR BARRIER - WHITE	20.00	EACH		$	
0140	01987		DELINEATOR FOR GUARDRAIL BI DIRECTIONAL WHITE	10.00	EACH		$	
0150	02003		RELOCATE TEMP CONC BARRIER	400.00	LF		$	
0160	02014		BARRICADE-TYPE III	9.00	EACH		$	
0170	02058		REMOVE PCC PAVEMENT	100.00	SQYD		$	
0180	02091		REMOVE PAVEMENT	30.00	SQYD		$	
0190	02220		FLOWABLE FILL	175.00	CUYD		$	
0200	02230		EMBANKMENT IN PLACE	15,063.00	CUYD		$	
0210	02242		WATER	5.00	MGAL		$	
0220	02351		GUARDRAIL-STEEL W BEAM-S FACE	403.00	LF		$	
0230	02360		GUARDRAIL TERMINAL SECTION NO 1	4.00	EACH		$	
0240	02429		RIGHT-OF-WAY MONUMENT TYPE 1	11.00	EACH		$	
0250	02432		WITNESS POST	6.00	EACH		$	
0260	02484		CHANNEL LINING CLASS III	60.00	TON		$	
0270	02545		CLEARING AND GRUBBING 4.1 ACRES	1.00	LS		$	
0280	02562		TEMPORARY SIGNS	710.00	SQFT		$	
0290	02585		EDGE KEY	100.00	LF		$	
0300	02599		FABRIC-GEOTEXTILE TYPE IV	4,000.00	SQYD		$	
0310	02600		FABRIC GEOTEXTILE TY IV FOR PIPE	4,100.00	SQYD		$	
0320	02611		HANDRAIL-TYPE A-1	75.00	LF		$	
0330	02650		MAINTAIN & CONTROL TRAFFIC	1.00	LS		$	
0340	02671		PORTABLE CHANGEABLE MESSAGE SIGN	2.00	EACH		$	
0350	02690		SAFELOADING	15.00	CUYD		$	
0360	02720		SIDEWALK-4 IN CONCRETE	863.00	SQYD		$	
0370	02726		STAKING	1.00	LS		$	
0380	02898		RELOCATE CRASH CUSHION	4.00	EACH		$	
0390	03171		CONCRETE BARRIER WALL TYPE 9T	200.00	LF		$	
0400	03289		SIDEWALK RAMP TYPE 3	7.00	EACH		$	
0410	05950		EROSION CONTROL BLANKET	2,800.00	SQYD		$	

PROPOSAL BID ITEMS

141050

Report Date 9/4/14

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
0420	05963		INITIAL FERTILIZER	1.00	TON		$	
0430	05964		20-10-10 FERTILIZER	1.00	TON		$	
0440	05985		SEEDING AND PROTECTION	3,070.00	SQYD		$	
0450	05990		SODDING	4,971.00	SQYD		$	
0460	05992		AGRICULTURAL LIMESTONE	1.00	TON		$	
0470	06406		SBM ALUM SHEET SIGNS .080 IN	81.00	SQFT		$	
0480	06410		STEEL POST TYPE 1	148.00	LF		$	
0490	06510		PAVE STRIPING-TEMP PAINT-4 IN	500.00	LF		$	
0500	06514		PAVE STRIPING-PERM PAINT-4 IN	6,712.00	LF		$	
0510	06568		PAVE MARKING-THERMO STOP BAR-24IN	57.00	LF		$	
0520	06574		PAVE MARKING-THERMO CURV ARROW	11.00	EACH		$	
0530	20738NS112		TEMP CRASH CUSHION	2.00	EACH		$	
0540	21655EN		REMOVE ASBESTOS PIPE	1,160.00	LF		$	
0550	23131ER701		PIPELINE VIDEO INSPECTION	1,965.00	LF		$	
0560	23143ED		KPDES PERMIT AND TEMP EROSION CONTROL	1.00	LS		$	
0570	23158ES505		DETECTABLE WARNINGS	325.00	SQFT		$	
0580	23274EN11F		TURF REINFORCEMENT MAT 1	555.00	SQYD		$	
0590	23818EC		GRAVITY RETAINING WALL	400.00	SQFT		$	
0600	24631EC		BARCODE SIGN INVENTORY	21.00	EACH		$	

Section: 0003 - DRAINAGE

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
0610	00440		ENTRANCE PIPE-15 IN	72.00	LF		$	
0620	00521		STORM SEWER PIPE-15 IN	1,437.00	LF		$	
0630	00522		STORM SEWER PIPE-18 IN	422.00	LF		$	
0640	00524		STORM SEWER PIPE-24 IN	199.00	LF		$	
0650	00528		STORM SEWER PIPE-36 IN	119.00	LF		$	
0660	01000		PERFORATED PIPE-4 IN	2,854.00	LF		$	
0670	01010		NON-PERFORATED PIPE-4 IN	15.00	LF		$	
0680	01032		PERF PIPE HEADWALL TY 4-4 IN	1.00	EACH		$	
0690	01433		SLOPED BOX OUTLET TYPE 1-18 IN	1.00	EACH		$	
0700	01456		CURB BOX INLET TYPE A	14.00	EACH		$	
0710	01480		CURB BOX INLET TYPE B	1.00	EACH		$	
0720	01544		DROP BOX INLET TYPE 11	11.00	EACH		$	
0730	01559		DROP BOX INLET TYPE 13G	4.00	EACH		$	
0740	01568		DROP BOX INLET TYPE 13S	1.00	EACH		$	
0750	01740		CORED HOLE DRAINAGE BOX CON-4 IN	45.00	EACH		$	
0760	01756		MANHOLE TYPE A	3.00	EACH		$	
0770	01761		MANHOLE TYPE B	1.00	EACH		$	

Section: 0004 - BRIDGE

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
0780	08002		STRUCTURE EXCAV-SOLID ROCK	1,314.00	CUYD		$	
0790	08003		FOUNDATION PREPARATION	1.00	LS		$	
0800	08100		CONCRETE-CLASS A	763.90	CUYD		$	

PROPOSAL BID ITEMS

141050

Report Date 9/4/14

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
0810	08150		STEEL REINFORCEMENT	111,076.00	LB		$	

Section: 0005 - GASLINE

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
0820	03404		GAS LINE-4 IN	190.00	LF		$	
0830	21384ED		BORE AND JACK PIPE-6 IN	171.00	LF		$	
0840	21846EN		POLYETHYLENE GAS MAIN-2 IN	1,583.00	LF		$	
0850	23337EC		GAS VALVE-2 IN	3.00	EACH		$	
0860	24712EC		GAS LINE CONNECTION	4.00	EACH		$	
0870	24713EC		GAS SERVICE LINE	734.00	LF		$	

Section: 0006 - SEWER

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
0880	01052		SEWER PIPE-8 IN	603.00	LF		$	
0890	01053		SEWER PIPE-10 IN	361.00	LF		$	
0900	01082		STEEL ENCASEMENT PIPE-BORE&JACK-16 IN	118.00	LF		$	
0910	01083		STEEL ENCASEMENT PIPE-BORE&JACK-12 IN	119.00	LF		$	
0920	01799		SANITARY SEWER MANHOLE	9.00	EACH		$	
0930	01799		SANITARY SEWER MANHOLE SADDLE	2.00	EACH		$	
0940	20985ND		CLEANOUT	6.00	EACH		$	
0950	24238EN		BORE AND JACK PIPE-14 IN	65.00	LF		$	
0960	24715EC		SANITARY SEWER LATERAL	234.00	LF		$	

Section: 0007 - WATERLINE

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
0970	01083		STEEL ENCASEMENT PIPE-BORE&JACK-12 IN	80.00	LF		$	
0980	01093		DUCTILE IRON PIPE-6 IN	177.00	LF		$	
0990	01315		BLOW-OFF ASSEMBLY	1.00	EACH		$	
1000	02606		FIRE HYDRANT	3.00	EACH		$	
1010	03387		PVC PIPE-8 IN	1,045.00	LF		$	
1020	03411		WATER LINE-2 IN	417.00	LF		$	
1030	03522		GATE VALVE-2 IN	2.00	EACH		$	
1040	03526		GATE VALVE-6 IN	2.00	EACH		$	
1050	03528		GATE VALVE-8 IN	2.00	EACH		$	
1060	20333EN		SERVICE LINE	194.00	LF		$	
1070	21384ED		BORE AND JACK PIPE-6 IN	63.00	LF		$	
1080	22866NN		WATER METER	12.00	EACH		$	
1090	23596EC		TAPPING SLEEVE AND VALVE-6 IN	2.00	EACH		$	
1100	24077EC		TAPPING SLEEVE AND VALVE-8 IN	2.00	EACH		$	
1110	24238EN		BORE AND JACK PIPE-14 IN	113.00	LF		$	

PROPOSAL BID ITEMS

141050

Report Date 9/4/14

Section: 0008 - MISCELLANEOUS-UTILITY

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
1120	02701		TEMP SILT FENCE	1,000.00	LF		$	
1130	02726		STAKING	1.00	LS		$	
1140	05985		SEEDING AND PROTECTION	5,000.00	SQYD		$	

Section: 0009 - DEMOBILIZATION &/OR MOBILIZATION

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
1150	02568		MOBILIZATION	1.00	LS		$	
1160	02569		DEMOBILIZATION	1.00	LS		$	